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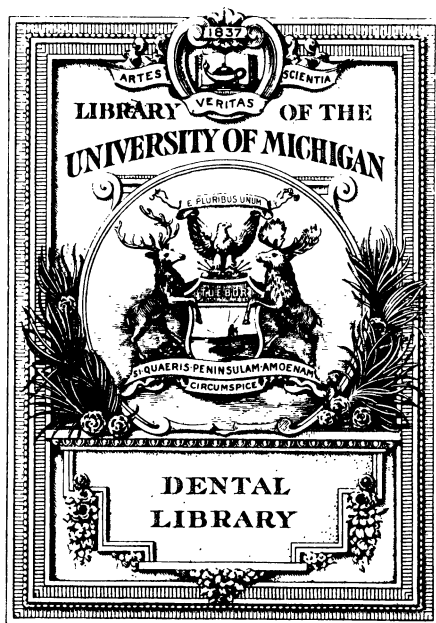
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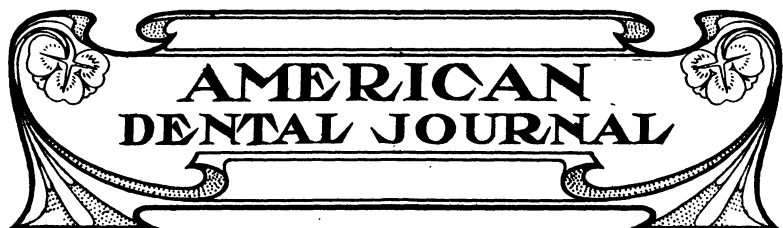
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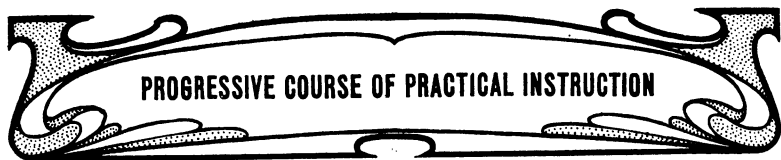
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PORCELAIN INLAYS.

(By F. Ewing Reach, D. D. S., Professor of Porcelain Dental Art,
University of Illinois.)

CHAPTER II.

In the further consideration of the porcelain inlay for the restoration of lost tooth tissue, I wish to reiterate and emphasize the importance of great care in cavity preparation. Indeed the foundation of all successful inlay work depends wholly upon this most essential part of the operation. And in view of this fact I will direct my efforts in this paper to this important phase of the subject.

Prior to the last decade, cavity preparation for the metallic fillings varied according to the judgment of each individual operator. But through the untiring efforts of Dr. Black and the able support of Dr. C. N. Johnson and a few others, this part of operative dentistry has been placed upon a scientific basis, so that we may calculate to almost a mathematical certainty just what form each cavity should be made in order to get the best results. And while there is a slight variation to meet the peculiar characteristics of each material used, the preparation in the main remains the same.

Recognizing a certain inherent weakness in porcelain and the totally different method of introduction into the cavity, we must of necessity still further modify the cavity preparation. But it is my opinion that the basic principles governing cavity preparation for the metallic fillings should also govern those for inlays. And aside from the fact that cavities for inlays should have no undercuts within the cavity the preparation is practically the same as for amalgam fillings.

In cavity preparation for porcelain inlays, I would summarize as follows: Parallel or slightly diverging walls in the direction the matrix is to be drawn. Free from undercuts and with sharp, well-defined margins. And when possible, the walls should be cut at such an angle, near the orifice of the cavity, that the margins of the finished inlay will have a square corner.

In view of the very convincing evidence obtained through a great number of experiments in and out of the mouth, coupled with the observation of quite a number of the failures of some of our experts, I have made the following deductions regarding inlay anchorage: *That all inlays must have one or more of the following means of retention supplementing that of cement adhesion. Either direct or frictional planes of resistance or some form of pin anchorage.* By direct planes of resistance we mean surfaces of the cavity so shaped that they will act as a direct resistance to the normal masticatory forces, such as the various modifications of the dovetail. The mortise joint serves as an illustration of frictional resistance.

To simplify description, I will classify cavities with reference to their requirements for retention as follows:

First—Cavities in which frictional resistance affords sufficient retention. Namely, labial, buccal, simple occlusal and approximal cavities.

Second—Cavities in which direct planes of resistance are required. Namely, approximal cavities that include incisal or occlusal angles, the walls of which are sufficiently strong to afford adequate means of retention.

Third—Cavities in which some form of pin anchorage is necessary. In this class, we may include all large restorations.

As our readers will be composed largely of practitioners of more or less experience, we will endeavor to illustrate and describe fundamental principles rather than show a great number of cavities, the preparation of which would involve a modification of those shown.



FIG. 1



FIG. 2



FIG. 3



FIG. 4

In Fig. 1 we have a sectional view of a simple labial inlay, the cavity preparation of which is too simple to warrant much attention, but since the idea still prevails in the minds of many that the adhesion of cement will hold inlays in these cavities, I will take occasion just here to again emphasize the importance of employing mechanical means of retention. These cavities are usually very shallow and

often extend over a very considerable area, and unless the walls are made perpendicular (thereby obtaining frictional resistance) they cannot be depended upon for the permanent retention of inlays. Avoid making cavity round, as it will be confusing when you come to set your inlay. You will be unable to determine its exact position in cavity.

Owing to their conspicuous location, simple construction and freedom from stress, these are indeed favorable localities for porcelain. From most every point of view, porcelain in labial cavities of the six anterior teeth most nearly approaches the ideal filling material.

In Fig. 2 is shown a small disto-approximal cavity, cut out labially, so that matrix may be drawn in this direction without much separation of the teeth. The lingual plate in many cases may be left standing, as represented. Often the order may be reversed to advantage—opening the cavity lingually. The primary object of opening these cavities to the surface is to facilitate withdrawal of the matrix and the insertion of the inlay.

Figs. 3 and 5 show approximal cavities in cuspid and molar, both of which come under one classification and each a modification of the dovetail, with but slight variations in the different teeth. To these



FIG. 5



FIG. 6



FIG. 7



FIG. 8

two forms of cavities, I wish to call especial attention, for the reason that a wide range of cavities may be prepared in this way and the results obtained will be eminently satisfactory for the following reasons: Matrix is more easily fitted and withdrawn, but little separation is required and a more positive means of anchorage is obtained.

In some of the illustrations we have shown decided retentive grooves. They are, however, somewhat exaggerated to bring out the principle more distinctly. But when parallel walls are to be obtained, they will, in the majority of cases, suffice as a means of anchorage.

Fig. 7 is a cavity of the third class and while the illustration does not show the details, a general idea may be obtained. In cavities of this size, the pulp will usually be exposed and its removal necessitated, in which case a pin may be easily anchored into the canal. In some cases, however, the pulp may not be involved, and then the question of where to anchor the pin is not always easily settled. Where the adjacent teeth are intact, the best location for pin is in lingual portion of root, midway between the pulp and the periphery of tooth. The hole should be made with a small drill parallel with the long axis of the tooth. In the absence of approximating tooth, the pin may be anchored laterally, otherwise it would be almost impossible to get sufficient space to insert inlay when finished.

In Fig. 8 is shown pin anchorage for an incisal restoration. While the method may not be new I am not aware that it has ever been employed before, and since it has proven to be a more satisfactory means in my hands than the wire loop or staple that is so much used, I will first point out some of its advantages. The staple does not pass through the body of the porcelain, thereby obviating the element of weakness produced by the line of cleavage along its course. The pins being held together by a continuous bar which rests in a groove made for it between the two pin holes, serves as a means of securely holding matrix and pins in their proper relation, while packing and baking body, and it overcomes to a considerable extent the usual warpage.

The staple is best made by taking 26 or 28 gauge iridio-platinum plate and cut out a piece the form of the letter H, and fit into holes which have been drilled into tooth on both sides of pulp.

Avoid grinding end of tooth to a plane surface, as the tendency to warpage of matrix fitted to a flat surface is much greater than one fitted to an irregular surface. After grinding until margins are sharp and well defined, take a small round bur or stone and hollow out the center, so that the end of tooth will present a slightly concaved surface.

(To be continued.)

OPERATIVE DENTISTRY.

By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,
Chicago College of Dental Surgery.

CHAPTER V.

Treatment After Removal of Deposits.

After instrumentation to remove incrustations of tartar there remains usually coatings of thin deposits, stains etc., here and there that may be better removed by the friction of revolving rubber points, cups and small bristle polishing brushes charged with a paste of fine pumice, than by scraping with an instrument. If the pumice be wet with some form of peroxide of hydrogen we have a combination particularly effective for the removal of coatings. Peroxide of hydrogen in itself, used with friction, will often quickly remove stains and discolorations, but it is more effective with the abrading properties of the pumice.

It is well known, I dare say, that peroxide of hydrogen (to be had under several names of a proprietary nature, such as Dioxogen, Pyrozone, Hydrozone, Hydrogen Dioxide etc.) is a bleaching agent. The property to dissipate colors or pigment makes it an excellent adjunct to the pumice, besides it is in a great measure an antiseptic agent.

Tooth polishing brushes of bristle are better adapted in many places than the rubber cups and points, while in other places the cups and points may be better. These latter should all be carefully cleansed and sterilized if used again, and I believe they are generally used until worn up, while the polishing brushes are never to be used a second time, but thrown away and a new one used in each case. We may presume these to be free from infecting germs when we buy them, but it is safer to sterilize them immediately and have them ready for use. I think many fail to get best results with them because they do not flare the bristles out by revolving the brush, end on, against the broad surface of a tooth until they stand radiating in all directions nearly or quite at right angles to the shaft. In other words, make a "rose" of the brush and then it will conform in revolving to the shape or contour of any surface one may attack, dropping well in between the teeth and sweeping under the free edge of gum at the necks of teeth. Rubber cups will do this, too, pretty

well if the edges are thin enough, and under this free edge is an important place to polish.

There are also felt points that carry the pumice paste nicely and conform to irregularities pretty well, also rubber points with the grit in the rubber.

Very often a piece of orange wood shaped to a thin point and used by hand is just the thing about necks and between teeth. Many spaces between teeth cannot be reached so well or effectively as with the orange wood whittled to shape. In place of the orange wood I find some forms and qualities of wooden toothpicks very handy, and that is about the only thing they are good for. As toothpicks they are an abomination.

Polishing strips of very fine grit are splendid in many places, or thin cotton or silk tapes charged with the pumice paste. By carrying the ends of strips or tapes held by the fingers forward or back, according as the surface of tooth may be mesial or distal, and drawing so as to keep the strip fitted or conformed to the tooth, one may work up under the free gum without pain or injury if careful to not go too far. If, on the other hand, we draw the tape through straight we are sure to saw into the gums. Strips with the grit coatings on will not pass readily between many teeth—they will tear and break before we get them through. By taking a pair of scissors and clipping the strip to a long tapering point and drying the embrasure with a bit of cotton we may often push the strip through below or above the contact point of the teeth, as the case may be, and use it as we desire.

This applies quite as well in many cases where we have filled and cannot pass the tape by the contact point at first, without tearing and breaking.

Before leaving this subject of cleaning and *polishing* teeth, I would urge upon my fellow practitioners the necessity, in a prophylactic sense, of doing this work oftener for our patients than most dentists do. As a preventive measure it keeps off initial deposits by destroying the nuclei that seem to draw precipitated calcic particles like a magnet attracts steel filings. Many of the cavities between the teeth would be entirely prevented or progress of initial decay greatly retarded if cleaning and polishing was done oftener by the dentist. And let me emphasize the word **POLISHING**.

When tartar is scaled off it seldom cleaves from the tooth so freely

that no little particles are left behind. With nuclei of that character the incrustation recurs in a surprisingly short space of time. With a polished surface, and especially one frequently polished, it is hard for the precipitated calculi to get a first hold. The frequent polishing prevents the lying in contact with tooth of that viscid film that is the forerunner of calcic deposits. This film holds acidity in contact with the tooth substance and etches the enamel, so to speak, so that the calcic particles can take hold.

Of course where the teeth are brushed well by patient, using a powder to break up the film, and where the teeth are abraded by constant use in mastication, tartar does not form, which goes to show that this sort of treatment is what is needed at more vulnerable points; therefore, the more we do this for our patients, within reason, where they cannot do it for themselves, and the more we can make them understand this, the better service we can do for them. On the same principle that the every-day brushing and care of the teeth by the patient does good and keeps away viscid films and deposits and germs of decay, the farther reaching efforts of the dentist faithfully done at frequent intervals, does good and prevents troubles for the future.

With the education of the public along these lines; with willingness to pay for prevention rather than cure or repair, the time will come when the dentist's efforts will be given more to preserving by prevention than repair after destructive inroads have begun. Given the confidence and co-operation of the patient with good sound teeth to begin with a thorough and conscientious dentist with sound prophylactic ideas can come pretty near to keeping the teeth from decay and from the pyorrhoea curse.

After the polishing course has been carried to completion the next step is to free the mouth of all grit and debris, using a stream of warm water in all such pockets and recesses as may not be freed by wrinsing the mouth. Following this a further wrinsing with Dioxogen or some of the other preparations named, reduced one-half or more with water, will usually leave in good condition the soft tissues that have been wounded. If desired, something in the anti-septic or astringent line may be used, but may be left to the next sitting, if not too far away. In cases of considerable pyorrhoea lesions, treatment may be necessary for a number of sittings. Where deep inroads and pockets have been made, and the alveolus is dis-

eased, the remedies I use are Pheno-sulphuric acid (spoken of in Chapt. IV), Iodide of Zinc, Sulphate of Copper, Camphophenique, Adrenolin and other things, chosen, as the case may seem to demand; but as this is trespassing on the domain of Prof. Cook I must not go further into it.

The frequent use of antiseptic and soothing mouth washes by the patient during the intervals of visiting the dentist is of course to be advised. If one has not an excellent formula of his own there are many very excellent washes on the market, samples of which have been usually so freely supplied that dentists are familiar with them, and know which they prefer to advise or prescribe.

In concluding this subject I may perhaps be pardoned for repeating ~~that~~ cleaning the teeth or the removal of stains and deposits should ~~be~~ approached and carried on with all the exacting antiseptic ~~and~~ germ-destroying precautions of undertaking a surgical operation. It is without question in a large measure a surgical operation and the readiness with which infection of some sort might be carried into the wounds by unsterilized instruments and carelessness will be apparent to the most dull and unobserving; therefore, instruments should be not only scrubbed clean with pure soap and brush in running water, hot if can be, but they should be boiled or otherwise effectively sterilized. And to avoid carrying infection from one pocket to another in the same mouth sterilizing precautions should be taken all through the operation. A quick and effective way is to dip an instrument into alcohol, then burn it off by touching it quickly to the lamp flame. First, of course, all debris should be removed. Heat enough is engendered to destroy germs, but not to injure temper of instruments, unless a surplus of alcohol clings. In that case shake off before setting on fire. Some care must be exercised about this not to overturn alcohol or get it afire by thrusting an strument still ablaze back into the bottle. As the blaze is often invisible, one should wait a sufficient time or blow out the possible flame before dipping it again.

(To be continued.)

DENTAL THERAPEUTICS.

By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology School of Dentistry, University of Illinois.

CHAPTER VI.

We have previously called attention to arsenic and some of its various constituents in a general way. Its effects on nutrition has only been alluded to in a very brief manner, for it would be quite out of place here to discuss this phase in anything like an extensive way, for here we are only interested in this agent as it applies to its action in a pharmacological process. When it is administered in small doses the animal tissue will become habitually tolerant, and the dose may be increased to a point far beyond that at which it would be considered poisonous at the beginning of the administration. Arsenic eaters are known in some countries, and arsenic is looked upon there as a means of overcoming fatigue in mountain climbing and to excite various functions where physical strength and endurance is required. Many times it is used to improve the complexion and figures of the individual. It is said that the habit as practiced by Syrians has but little if any effect on the natives, for many of them live to a very old age.

It is excreted by the bowels and the respiratory mucous membrane. Traces have been found in the excreta of the hair, skin and milk, and it has been observed that children have been fatally poisoned as a result of its presence in the mother's milk. It has been found in the urine as a volatile organic base and produces certain toxic symptoms when injected into frogs.

It is extensively used in the treatment of malaria, but its specific effect on the parasite of malaria is at the present time doubted. The beneficial effects that are so frequently observed in individuals suffering from malaria are more likely due to the increased nutritive function other than its direct effect upon the germ of malaria. It is administered in some cases of chorea with some very beneficial effects, which is an indication that its principal effect is due to its action on the central nervous system.

Arsenic has also been used with benefit in periodical neuralgia. I shall later on describe some very interesting cases of neuralgia

and their treatment, and will again refer to arsenic in this connection.

There is another agent belonging to this class of metals that has been recommended for the devitalization of the pulp of the tooth. We have reference here to cobalt, but the salts of this metal differ very little from that of other metals. Since arsenic is the most universal agent used in the devitalization of the pulp, there has been various formulas and preparations recommended, and most all of the teachers in materia medica and therapeutics have a formula which they recommend as being the most beneficial. If it be true, and without a doubt it is, that arsenious acid produces the death of the pulp by its poisonous action on the protoplasmia, then any other agent that might be incorporated would only be for the purpose of lessening the irritation that is so frequently encountered in the devitalization process. And many of these agents may act upon the arsenic in a way as to prevent its rapid absorption. The irritating properties of arsenic on the pulp is due very largely to the functional activity of the pulp at the time the application is made. If the protoplasmic substance of the pulp is in perfect physiological condition there will be but little if any pain connected with the absorption of the arsenious acid. But it must, however, be borne in mind that it very seldom happens when it is necessary to devitalize the pulp that it is found in a perfect physiological condition, therefore it will be necessary to make as near as possible a diagnosis as to the condition that the pulp is in when arsenic is applied.

In the acute stages of hyperaemia of the pulp, arsenic will invariably act as an irritant and cause extreme discomfort and at the same time prevent the rapid absorption of the arsenious acid. But if the hyperaemic condition has extended to the secondary stage of inflammation the arsenic will lessen the irritability of the connective tissue and in many instances will prevent the pain that twenty-four hours previous would have been extremely uncomfortable. It would not be considered wise practice when the patient presents himself with an aching tooth to at once place arsenic in the cavity with the usual methods of sealing it in unless the pulp can be thoroughly uncovered and a portion of the congested blood allowed to escape. In such cases arsenic can be at once applied and the patient dismissed with the assurance that there will be but little if any further aching of the tooth, and that in the course of a few days the pulp can be

removed without encountering any great amount of pain. It may sometimes happen that a small amount of arsenic may be absorbed beyond the apical end of the root, but I think such is very rarely the case. Some of the very best practitioners believe in removing the arsenic and then applying an agent that will embalm or dry the pulp so that nothing will be left but a small thread-like portion, which can be removed with ease and the root canal at once be filled. These various agents that are so frequently used have but little beneficial effect in the destruction of the filaments of the pulp. If they do, then our pharmacological law of absorption is incorrect; for it is a well-known fact that dead tissue very seldom, if at all, is penetrated by any substance other than in a gaseous state.

We have previously stated that substance to penetrate into tissue must have an elective affinity, and also the agent must go into solution or become disassociated, and the ions of the compound must have a chemotactic property for certain other atoms grouping in the tissues. The probabilities are that no other embalming substance can be used than the arsenic itself, and that process is accomplished while the arsenic is gradually disassociated and the chemical process going on in the manner just stated. Alcohol and formalin are extensively used in the preservation of tissue, because of their ability to rapidly become disassociated in the presence of the atmospheric air or in contact with dead organic substance, but their benefits in this connection is largely due to their antiseptic or disinfectant properties; in other words, they prevent the destructive changes of the tissues by bacteria. But this last effect is practically the same as arsenic has on living organic matter.

When the pulp has been destroyed by arsenic as above described, the devitalized portion very seldom if ever immediately separates itself from the living portion remaining at the apical end of the root, and this is a very important point, how best to get rid of this dead portion without farther interfering with that part that should remain healthy in the apical space.

There is probably no branch of the practice of dentistry that has so taxed the ingenuity of the dental profession as this getting rid of the little fiber of tissue after it has been devitalized. If it were not for the toxins and ptomains that are always the product of the action of bacteria on dead organic substance, it would be a very easy matter to introduce a saprophytic organism into the pulp chamber

and thus destroy the dead organic portion, but in such a process there is danger of producing a very large number of ptomain substances, the effects of which if absorbed might produce a lasting effect upon the protoplasmic structure of the nerve supply in that vicinity.

We are at the present time incapable of realizing the wonderful effect that such a process might have on the nerve tissues, either peripheral or central. If it were possible through some of the decomposition processes of dead organic matter to isolate a proteolytic enzyme that would readily bring about the digestive process of such tissue as that of the devitalized portion of the pulp of the tooth we would then be in possession of an agent that would do away with many of the annoying features that so frequently accompany the destruction of the pulp of the tooth.

Experimental research in the botanical world has revealed some vegetable ferments which are very interesting from a scientific standpoint, and some have gained considerable popularity as a proteid digester. It has been found in plants such as *drosera* and *dionea* that they secrete a digestive fluid that has an enzymatic action on proteid bodies. The bromelin, which is a digestive ferment found in the pineapple, is another one of this class of vegetable ferments. But perhaps the one that is best known is the *carica papaya*, or best known as paw-paw; from this fruit is extracted papayan, papayoin or papoid. This is a ferment that is capable of acting both in a slightly acid or alkaline media. When taken internally it has very little if any effect except in the process of digestion, but when injected into the circulation it will produce paralysis of the central nervous system and the heart. It is very irritating to the subcutaneous tissue. It has been used for its digestive properties in the place of pepsin and pancreatin, where there has been any interferences with the organs of digestion. It has also been a remedy that has found more or less favor for the expelling of worms from the intestinal tract. It has also been favorably used for the destruction of the diphtheritic membrane on the mucous surfaces. For a while it found some favor for the injection in the tumorous growths, with the hope of digesting the new growth. Dr. A. W. Harlan of Chicago introduced papain as a pulp digester, and I think there are many who are using it with success. But I am of the opinion from personal observation and some experiments that I have made that the digestive properties of papain on dead animal tissue depends upon

several important factors. If pus-producing micro-organisms have been actively working on organic substance in vicinity of the pulp or other tissue, for that matter, or if papain be applied to sterile freshly devitalized tissue, it is an active digester; but if the pulp or any portion of the pulp is undergoing any putrefactive changes its enzymatic action is materially interfered with.

I have frequently referred to the many chemical compounds which are basic products, and are of a high chemical molecular structure, capable of interfering with or breaking up many organic compounds and forming a chemical and highly molecular structure; therefore, in placing a vegetable protolactic enzyme in contact with many of these complexed chemical structures there would at once be formed a chemical substance that would most likely be inert. In fact, I have observed this to be the case in some experiments that I have made. However, great credit is due Dr. Harlan for the introduction of this agent into the profession, for it has undoubtedly introduced a new thought that is worthy of the highest commendation, because along this line is the only scientific way to solve this problem, and most likely in the near future other products will be introduced that will produce the greatest beneficial effect.

Devitalization of the pulp and its destruction in the way just described when possible in my opinion is the only scientific means of correcting the pathological process, which, of course, must be considered pathological or the removal would not be necessary. There is another method of removing the pulp that has become very popular and is quite universally used in favorable cases. This method is known as the pressure anesthesia method. This process at once resolves itself into a surgical operation on a structure that is extremely delicate and which is surrounded by some of the most vitalistic protoplasmia in the human body. And it is a question in the mind of every physiologist if it would not be better in all cases wherein interferences of the tissue, and especially such tissue as the pulp of the tooth and the adjacent structure is concerned, ought not to have time to readjust itself to the pathological changes which are taking place in such a delicate structure, and when it is necessary to devitalize the pulp. Devitalization takes place as a pathological process. And when this is accomplished, as above described, the physiological activities of the parts surrounding the apical space has an opportunity to adjust itself to the foreign substance that is pro-

gressively and surely destroying the physiological irritability of the protoplasmia in that vicinity, while on the other hand, if by physical force the pulp is torn from its attachment at the apical end of the root, there is hemorrhage and more or less irritation of that section of the nerve fiber that is connected with the main branch, and if the pulp canal is immediately filled there has been introduced a foreign substance against those delicate nerve endings that may be the means of keeping up an irritation for an indefinite period, or possibly might be the means of producing many of the degenerative processes so frequently happening in nerve tissue. If the pulp canal is not filled at the time that the pulp has been removed, then there is the possibilities of the extravasation of blood and serum into the pulp chamber, thus making it possible for the tooth to become very sensitive and sore, and the result is that in the mouths of many individuals the normal neurility of the part has been very much interfered with, and might under some circumstances take as long a time for the part to readjust itself as it would in the amputation of a finger or a toe. Of course, this would depend largely upon the irritability of the individual, both as regards their physical and nervous reaction. In individuals who have been accustomed to chewing substance that requires force and have a good physical and nervous equilibrium such a person would not likely suffer any special inconvenience in the immediate extirpation of the pulp, especially if this was done under the most aseptic conditions—a condition that under no circumstances have I ever found except under those circumstances in which the pulp chamber and parts had previously been treated aseptically for days previously to the experimental examination, a condition that I will discuss in the future.

(To be continued.)



PROSTHETIC DENTISTRY.*

By B. J. Cigrand, B. S., M. S., D. D. S.

(Professor of Prosthetic Dentistry and Technics of School of Dentistry, University of Illinois.)

CHAPTER VI.

MAXILLARY ANTAGONISM AND MODELS.

The maxillary antagonism (or bite) is the relative position of the upper and lower maxillary bones with reference to their articulation and occlusion.

To obtain the maxillary antagonism there are several methods:

1. Prepare a cake of wax in warm water and shape the same to fit the alveolar ridge of both jaws and hold the same unaltered. With a blade instrument mark the median line on the cake of wax. When wax is sufficiently hard hold wax against the upper maxillary and ask patient to open the mouth. Extract the wax and place in cold water.

2. Another method often employed is to run the already taken impression in plaster of Paris, then remove the impression and trim the model. Upon the model make a gutta percha base plate. A rim of wax is then placed on the alveolar portion of the base plate to represent the required length of teeth. Place this base plate in patient's mouth and request him to naturally close the mouth. In case of full upper and lower proceed the same as with the case just described, then introduce both base plates. If the rims of wax touch at one point sooner than another, remove the base plate and trim off wax rim where it touched. Replace in patient's mouth. The median line is then marked and several oblique lines are produced across the junction of the two wax rims, thus determining the accurate point of contact when the base plates are removed from the mouth. It is also recommended that instead of drawing the oblique lines, that with small copper staples the two wax base plates are held together and removed in contact.

To assure accuracy in getting maxillary antagonism, it is wise to have patient's face nearly horizontal and ask while closing to hold tip of tongue against roof of mouth; this causes muscles of neck to become tense and avoids tendency of jaw to protrude.

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When the antagonism is obtained by the first method, namely, the wax cake, run the impressions, and after separating the models, place the wax bite containing the models into the articulating frame and join the two models to the articulator by a mixture of thin plaster of Paris. Then place articulator containing models and bite in warm water and remove the wax.

When antagonism is obtained by trimmed gutta percha base plates, place the two models in their respective gutta percha base plates, and place entirely in the articulating frame, attaching models to frame by plaster. When plaster is set place all in warm water and remove the wax rims.

The common fault with the antagonism is found on the articulating frame.

The subject of articulation and occlusion will be considered in the next chapter.

A dental or oral model is a correct reproduction of the mouth, or any part thereof, and usually made of plaster of Paris.

For description sake, it is divided, or said to have a face, back, body and sides.

The face corresponds to that part of the mouth which is to be fitted.

The back is opposite the face and is the base or foundation of the model.

The body is the "build-up" or that portion between the face and back.

The sides envelope the body. In vulcanite work it is not flared.

The face of an upper model has a heel, toe, alveolus and palate.

The heel corresponds to the maxillary tuberosity.

The toe, the anterior or labial portion.

The alveolus corresponds to the alveolar ridge.

The palate represents the roof of the mouth.

The division of lower models are same as upper excepting the palate.

The subdivisions of the face are the same as the upper, but it has the lingual portion instead of the palate.

There are four methods for preparing the impression prior to producing the models, and they are as follows:

- i. Smear the impression with olive or sweet oil, using camel's-hair brush to distribute equally and dispel excess of oil.

2. Paint the impression with shellac varnish, and after it is dry coat with oil.

3. Dip camel's-hair brush into carmanized water and quickly rub on bar of soap, then paint the impression with the carmanized suds.

In the event that the model or tooth is broken proceed to mend it in this manner:

See that the model is thoroughly dry, mix to a thin consistency oxyphosphate, apply to the edge and press firmly.

Another convenient method is to thoroughly paint broken parts with sandarac varnish and allow it to dry.

If desired to have plaster teeth on model strong and firm, place a small finishing nail into the impression of the teeth and pour plaster into the impression. When the model is pererated the plaster teeth will contain in their center the nail or point, making it stronger and more firm.

To remove the model, the tray is first taken from the impression and with a wooden hammer strike gently on the impression; the plaster will crack and break away. It often facilitates matters to permit the model and impression to become thoroughly soaked in water.

(To be continued.)



ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

By R. B. Tuller, D. D. S.

NO. 2.

Did you ever think?

Why, yes, of course.

But did you ever think seriously?

About how much pain and discomfort you cause?

Well, probably you have thought about it *some*—in a desultory way.

Yes, no doubt you have wished many a time that you could practice dentistry without giving much if any pain.

You would enjoy life better yourself—and perhaps you'd live longer.

We are too much creatures of habit. We get into a rut and stick there.

We are too busy—*some* of us—to think or plan or carry out what we may do to avoid pain, or to adopt a method assuredly safe and effective and expeditious, for it takes an effort and a little time to get out of the rut.

Dentistry has ever been painful, and we take it for granted that it ever must be so.

And aside from trying, perhaps, to be a little more gentle, if possible, and encouraging our patient to stand it "just a moment or two more" (which is often 15 or 20 moments), we don't seem to think there is much that we can do. Or at least it has been so.

Of course there will be some things more or less painful always, I dare say, unless we begin always by producing some sort of general anaesthesia.

I say there will always be some pain, for we cannot make a searching diagnosis for dental caries without producing some painful sensations.

And these are often enough to set our patient on "pins and needles," exciting fear and dread that lasts sometimes through the operation that may follow.

Something is being done lately in the way of producing partial anaesthesia by the use of nitrous oxide gas, continuously given as long as there is need for it.

In my estimation this is a good thing and has its place and an important one in dentistry.

And, again, some very able dentists have produced partial anaesthesia by using chloroform, and have gone through years of successful practice without any of the unfortunate results so frequently credited to the drug when used in the usual way to produce profound anaesthesia.

Most of us fight shy of chloroform, and no doubt properly so in our present understanding, but is it not possible, that we may be led to understand it so that we might use it with as much safety as gas to produce partial aesthesia?

Until quite recently gas was only given in a way to produce complete coma for the purpose of extracting teeth or some equally short operation lasting but a few seconds.

Administered in that way and continued only for a little time longer and the coma would indeed be complete and everlasting.

But by a better understanding we now find that gas may be administered in a modified way and continued almost indefinitely with no ill effects whatever, and a partial state of anaesthesia produced that permits of even prolonged surgical operations.

The anaesthetic condition simulates normal sleep more than is produced by any other agent familiar to us.

This method by the aid of an apparatus specially provided administers the gas through the nose, while the patient is breathing air naturally all through the operation.

Now, why may we not learn that chloroform may be just as safely administered, producing the same sort of natural sleep and not that pronounced anaesthesia that sometimes leads on to death?

Breathing all nitrous-oxide gas and no air for any length of time means death. We modify the manner of giving it and find we can safely give it, keeping up an even state of anaesthesia for a prolonged operation.

Let us not be then unduly prejudiced about anything that has a possibility of helping us out, and our patients, in reducing if not obliterating pain from our operations.

On the contrary, let us give credit due, and our sincere thanks

and encouragement to the men who are working these things out and bringing them to our better understanding.

This is in no way intended as encouragement for any one to undertake the use of any drugs without understanding them and feeling competent to safely use them.

Chloroform is one of the greatest benefactions ever bestowed on suffering humanity, but it should be in the hands only of those who fully understand all the phenomena of its subtle action on humanity.

Now, though both may be made safe for the dentist to use daily in his practice, there are objections to gas and chloroform. Some of our patients object to anything that produces any stage of narcotism. Any cumbersome apparatus that has a tendency to excite alarm is objectionable. While chloroform may be administered on a handkerchief, gas introduced by the nose requires apparatus that sometimes creates fear and misgivings.

Now we come to local anaesthetics and they are good, bad and indifferent. Some are not applicable in dentistry, some are not effective, some are too effective and some are dangerous to life.

Various agents have been used, but most everything has given way to comparatively safe preparations, depending upon the potency of cocaine as one of the ingredients, to make them effective, a drug of comparatively recent discovery—a matter of perhaps 25 years since it first came into general notice and use among physicians.

And here is a drug not to be trifled with either. Its reckless use has caused many deaths. Applied understandingly and properly prepared with other modifying drugs sometimes, it has proved almost as a great boon to the suffering as chloroform.

Think of the suffering it has ameliorated in thousands and thousands of not very serious but ordinarily exceedingly painful operations.

Humanity shrinks from pain. Brave men hesitate to deliberately submit to torture, even though it is often necessary to further health or the prolongation of life.

Strong men quail when they come to sit in the dentist's chair. No one likes it, though often the suffering is more in anticipation of pain and in imagination than in the real downright thing.

And yet there is no question but what we do sometimes cause excruciating pain. We know it not alone from the evidence our patients give, but most of us have tasted our own medicine.

And the biggest coward of all perhaps is the dentist when another of the tribe gets after him.

How about that exposed pulp? Wow! You've been there. So have I. I can feel it yet. Wow!

But you needn't wow—not very much nowadays, with cocaine, a skilled hand and a generally know-how ability.

Once there was a landslide—or a dentist's slide—toward electric cataphoresis—infiltration of dental tissue with cocaine solution by the aid of the electric current.

The outfits cost from \$60 to \$125, but we had to have them. Now they are laid on the shelf.

They consumed too much time, were disagreeable if not painful in use, and they did not bring satisfactory results after thirty or more minutes' application.

In other words, they did not prove practical, though sometimes they produced seemingly perfect results.

Later developments showed that the electric current sometimes roasted the pulp and even the peridental membrane. It went too far.

Following in shortly after came what is known as pressure anaesthesia—causing cocaine infiltration of tooth tissue by pressure.

I think pressure cataphoresis a better name—more correct. If pressure *per se* caused the anaesthesia then pressure anaesthesia might be right. The method so far is confined to the teeth.

It came into the profession as a secret, peddled about for about \$15.00 or \$20.00 each time it was given up until naturally the secret became an open one.

It did not come as most things do, by a scientifically authentic route, and hence has had no such introduction, and has not come into use as it deserves, for it certainly has merit not half understood.

When a tooth to be operated upon in almost any way (except extracting) can be positively and surely rendered insensible to pain in a few moments, even to removing a live pulp absolutely without pain, is it not an important method and discovery?

Some operators have tried the pressure method and failed and have given it up, but when other operators—*many* others—have met with success, and knowing how by experience, feel assured of success in almost every case, it goes to show that the fault lies largely or entirely with those who fail or the use of a faulty method.

When a reliable operator reports that he has taken out over fifty

live pulps from aching teeth without pain in any instance, it certainly means that any other dentist can have the same success if he but gets the *modus operandi* down to perfection and has reasonable persistence.

When I, to speak of personal experience, can remove six or eight pulps, one after the other at one sitting, and grind down other teeth, one until the pulp was exposed, and have my patient tell me it hurt him no more than paring his nails, I think it is a lot of evidence in favor of pressure cataphoresis.

None of the above teeth had cavities to work in, but the pulp was anaesthetized in each case through the entire thickness of the dentine, a little opening being made through the enamel for initial work to get action on the dentine.

It was a case of mal-occlusion that had to be regulated by cutting off several sound teeth for bridge purposes and grinding down others. The patient, a prominent business man in Chicago, will give his testimony any day that the work of cutting off, grinding and removing pulps was an absolutely painless operation—most of it done at one sitting of less than two hours.

Now, in many cases, the original method of forcing a cocaine saturated pellet of cotton into the cavity of decay with a plug of soft unvulcanized rubber behind it to prevent regurgitation—cocaine solution thus being confined under pressure—is as good a way as any one wants, but we have so many cavities that cannot be so treated successfully that I am sure that many who have tried and failed found mostly just such conditions—they did not confine the solution. It must be absolutely confined under considerable pressure, for when wasting the pressure amounts to nothing and infiltration will not take place by mere contact—not for some time at least.

Now, when we have the solution confined and can force it into the dentinal tubules which can positively be done in almost any case, we can force it in until the pulp becomes influenced, and when that occurs the whole coronal portion of the tooth is anaesthetized. And to do that does not take but the tenth portion of an ordinary drop.

To be personal again, hundreds of dentists know that a little discovery of mine has greatly improved the original pressure method by confining this minute quantity of cocaine in a little rubber cup-

shaped tip, which on the end of a suitable point for holding it and pressing, so fits the floor of the cavity or over a small opening through the enamel, that the cocaine, perfectly confined, is forced in and does its work.

I know when I cannot get the rubber tip into the cavity of decay I desire to operate in, I can apply my method to another opening if one may be found in same tooth, or a small one can be purposely made (to be filled afterward), and I can positively and unquestionably render the tooth insensible to pain in a few moments, so that I may bore or excavate in it anywhere without pain. If desired, I can go to the pulp chamber, open it and remove pulp without pain. This is a very positive and emphatic statement and means just what it says.

There is no cumbersome or scary apparatus and nothing to alarm the patient, and in many cases the operation of removing a pulp may be done without the patient's knowledge until the "nerve" is shown him on the broach. This has been done a number of times with certain nervous patients who, if they knew you were going after the pulp would "throw a fit."

There are many defects that can be utilized for the introduction of our cocaine, so that a special opening in sound structure does not have to be made so very often and when made the least objectionable place may be chosen, and I believe there are many cases when we would be justified in so proceeding if need be. A well-known Chicago attorney says: "Make as many openings as you need, but don't fail to use that *pain killer* when you fill my teeth."

Any dentist may have just as satisfactory results as I have related if he will understand and persevere in the right method—a method that confines the cocaine solution and positively forces a minute quantity into the dentinal tubules and into the pulp.

The slight condition of anaesthesia produced to simply excavate for filling does not last but a few moments and the pulp returns to normal sensitivity without injury or unpleasant after results.

Why should not pressure cataphoresis be more generally used?

(See Toothsome Topics next month.)

THE NATIONAL MEETING AT ASHEVILLE.

By R. C. Brophy, M. D., D. D. S.

On the crest of a mountain range, in "the land of the sky," the 1903 meeting of the National Dental Association was recently held. Asheville, North Carolina, the place of meeting, to the average Northerner and Westerner, is not a place of exaggerated prominence, but it would appear that in the Southwest, and East for that matter, well toward the Northward, Asheville is regarded as of considerable importance. Perched high up mid the peaks of the Blue Ridge at an altitude which tempers the heat of summer and the cold of winter, it is said to be a perpetual resort for seekers of more congenial climatic conditions in turn for the Southerner and the Northerner of the East coast. To those accustomed to mountain scenery Asheville attractions may not be so great, but to natives of the plains it is a most interesting and enjoyable experience to pass some time away mid the marvelous manifestations of nature's handiwork seen there upon every hand.

As early as two days prior to the convening of the National Association proper, dentists began to gather in Asheville, the earlier contingent representing the National Faculties' Association and the National Association of Examiners, these bodies also holding their annual meeting at this place and time. The Faculties' Association, after two days of proceedings, in which many questions of importance bearing upon college work were considered, including the question of the four-year course, finally ran out of time—at no time there being any indication of anything else giving out—and was brought to a close with the election of the following officers for 1904: President, M. C. Marshall, St. Louis; vice-president, E. C. Kirk, Philadelphia; secretary, John H. Kennerly, St. Louis; treasurer, H. R. Jewett, Atlanta.

As though their deeds were evil, the Association of Examiners transacted all of their business behind locks and bolts.

Secrecy was maintained with decided success. It was disclosed, however, that one of the subjects considered was that of interstate reciprocity in recognition of state certificates. This undoubtedly is a good idea. If a man is able to meet the requirements of a State Board of Dental Examiners of one state and is given a license to practice in that state by its board, it would appear that boards of

other states should accept such credentials and grants its license without the formality of an examination. If a state has not a board which merits confidence of the boards of other states there is cause for the profession of that state to hold in question the subservance of its own interests, and reason for it to endeavor to bring about improvement.

The dentists of Asheville displayed much kindness of heart and energy in arranging for the reception and entertainment of the visitors to their city.

Sunday afternoon (the 26th) the entire visiting contingent was loaded aboard two special trains on the Asheville and Craggy Mountain Electric Railroad and taken to Overlook Park, situated at the summit of Sunset Mountain. This ride, winding upward around the mountain side, was much enjoyed by all, but the greatest enjoyment came from the magnificent prospect afforded from the park. Asheville lying below in its mountain surrounded plateau, the French Broad River winding along; Biltmore, the million-dollar mansion of Vanderbilt, glistening six miles away; Mt. Pisgah and Mt. Cold, the highest peaks within the range of vision, and with but one exception the highest on the range, the height of the latter being 6,063 feet, and the innumerable other surrounding mountains, with the beautiful valleys lying between, presented a view most fascinating; though what is said to be the grandest sight of all from this summit, that of the setting of the sun behind the great peaks to the westward, was missed by the majority, through submission to the suggestion of their stomachs to go down to the hotel for dinner. Monday, the 27th, was passed by the assembled dentists in pleasant abandonment of all cares of the occasion, and though some lagging business of the Faculties' Association's meeting was done, enjoyment of the restful environment of Battery Park Hotel, where the majority made their home, and where the convention was held, dominated the disposition of almost every one.

Tuesday morning, the 28th, the large hall of the hotel gradually filled, and the officers of the association took their positions. When the time for calling the convention to order arrived, Dr. Ramsey of Asheville, in behalf of the local dental association of the city, stepped forward and presented to President Noel a very skillfully carved gavel of the form of a molar tooth with forceps forming the handle. After this gavel had brought about order, and Rev. Frank

Siler of Asheville had pronounced invocation, Mr. Louis M. Bourne, city attorney of Asheville, for the city presented an address of welcome, in which, amongst other things, he said:

"I have been commissioned to say a word of welcome to you on behalf of the city. I esteem this a great honor, a great privilege—this opportunity to speak to the leaders of your profession from every section of our great country and to tell you, for our beautiful city, how glad she is to have you with us and how welcome you are to everything that is hers.

* * *

"And, while Ashevilleans are celebrated for their modesty, yet I cannot let this occasion pass without saying that I feel that you are to be congratulated upon your meeting here just as much as Asheville is. If I and thousands of others—many of them from distant climes—are not badly mistaken, you have come for your meeting-place to God's own country. Over there in the purple distance stands Pisgah proudly piercing the skies. You may not believe it, but many of us here believe that this is the very mount from which Moses of old viewed the Promised Land. And, if you listen to the talk of those around and about you, you will soon find that most of our people regard the Asheville plateau as the Land of the Ancient Covenant.

"Unimported disease is unknown here, except an occasional toothache, and this has completely disappeared since your coming, entirely frightened away, as is usually the case, when the presence of the dentist is announced to the trembling sufferer.

"However this may be, I am here to extend you a hearty welcome on behalf of our city.

"Our hearts are opened to you, so are our gates; our mayor tells me you can get the keys whenever you feel like calling at the city hall, and the bars are not closed. So, enter in, gentlemen, and have a good time at the expense of the city. And, whatever you do, do not let your doings so impair your memory that you will forget that the latchstrings at Asheville always hangs on the outside for the National Dental Association whenever you may wish to come here. And, in conclusion, permit me to tender you again, the heartiest welcome on behalf of our beautiful city.

"You are thrice, yea, ten times welcome, and may your work here be blessed and bear good fruit in the years to come."

Dr. James McManus of Hartford, Conn., responded on behalf of the association to the address of welcome. In part he said:

"It is a delightful sensation to be among friends, to listen to words of welcome and to enjoy for a while the large-hearted, tactful, generous expression and evidences of Southern hospitality. I became convinced some years ago that the true Southerner's idea and meaning of the word welcome was vastly broader and kindlier than the standard dictionary definition of the word would lead one to anticipate. That knowledge gained in the past makes my present duty a specially pleasant one, to express for the officers and members of the National Dental Association—who represent the dentists of this country—most grateful appreciation and heartfelt thanks for your cordial welcome.

"To you, sir, personally, we all beg you to accept our grateful acknowledgements, and to the good people of Asheville, whom you so ably represent, the members and friends of the National Dental Association gathered here to-day most heartily thank you and them for your welcome to this beautiful city."

The address of welcome on behalf of the state was delivered by Dr. E. J. Tucker of Roxboro in part as follows:

"On me has been conferred the honor and pleasure of extending to you a cordial and hearty welcome to the hospitality of our State Dental Association. And it is as spokesman for this body that I greet you to-day, and, using the words of Milton, we say truly, 'Thus we greet thee with our early song, and welcome thee and wish thee long.' Yes, the most cordial welcome of our hearts is yours, the fullest friendship of our social life is yours; may this short respite from anxieties, care and practice bring to you all the pleasure and profit; may the deliberations of this honorable and scientific body be guided by wisdom, and the full measure of success crown every honest effort for progress in our profession and the betterment of humanity. May a communion of thought and spirit in this great gathering of scientific men bring increased strength and attainments that shall inspire us for greater research and progress in our profession. The blending of the two great dental associations a few years ago made plain the fact that state lines exist no longer in the heart of the true American.

"By love we are a united nation. We remember that back in the sixties on the sacred soil of old Virginia brothers' blood of the North

and South ran together and made crimson the waters of the Rappahannock river for freedom, and freedom came, when the fair angel who so long left us finally laid her hand upon the leaping heart of this embattled nation and said, 'Peace, peace, be still!' Thank God that we accepted the result with a resignation and fortitude that a generous North can but commend. And we of the South would not have it otherwise. No, thank God, that we bury the dead past and can now sing on both sides of Mason and Dixon's line 'Yankee Doodle' and 'Dixie.' Yes, we meet on this auspicious occasion, forgetting all our lesser differences. And as we enter this hall the livery of our special section, our creed and our politics is taken from us at the door and we put on the court dress of our noble fraternity.

"We meet as brothers; we have no badges but our diplomas, no distinctions but our years of graduation, all of us are born equal into this great fraternity. Welcome, then, welcome all, to this our joyous meeting. Here of all places in the world we may best hope to find the rest and peace we seek. Here, in the Switzerland of America, 'the Land of the Sky,' where the men are gallant and chivalrous, the women beautiful, gracious and kind, where the waters run pure and the air gives vigor, the birds sing sweetly and the flowers bloom more beautiful; yes, here we may climb upon God's own 'spy rock' and behold all nature in perfect accord with its Creator. To this land we welcome you."

Response to the eloquent address of Dr. Tucker, which, it is to be regretted, cannot be given in full, was made in an able manner by Dr. Burton Les Thorpe of St. Louis, of which the following is a part:

"It is a most happy privilege to be called on to respond to these words of welcome, so ably uttered by the distinguished representative of the profession in behalf of the 'Old North State' and the Southland.

"Of all welcomes the Southern welcome is the best. It has a ring of genuineness and hospitality not in other welcomes. I voice the sentiments of this entire audience when I say we are just as glad to be here as you are to have us here.

"My friend, Dr. V. E. Turner of St. Louis, told me last spring that if I came to Asheville I would find the altitude so high I could commune with the angels, and, after being here nearly a week, I

know Dr. Turner was correct, for I have indeed been communing with the good angels of 'Dixie,' whose hospitality and good fellowship are renowned; whose fair daughters are noted for their beauty and purity and whose sons have the large rich red corpuscles of professional pride and patriotism coursing through their veins.

"Dr. Tucker, in behalf of the members of the National Dental Association, I thank you sincerely for your cordial and generous words of welcome, and hope we of Missouri next year may have the pleasure of reciprocating your hospitality during the greatest event in the history of the dental profession—at the fourth international dental congress, when imperial Missouri as a host and St. Louis, the Queen of the Mississippi valley, as hostess, will unite in extending you all the same whole-souled, generous Southern welcome that you this day have tendered us.

"I bespeak the sentiment of the National Dental Association and their guests to-day when I say we appreciate the worth and character of the members of your state society. We appreciate your progressiveness and professional loyalty, and say to you each, when your life's work here is ended and the eye has dimmed, the hand has lost its cunning and the feet have grown weary as they near the river of the Great Beyond, may the good you have done humanity and your profession, the homes you have brightened and the hearts you have gladdened, cause the gates on high to swing ajar and the choir celestial to sing, 'Well done, thou good and faithful servant.'"

Following the series of opening addresses President Noel delivered his official address, and in part spoke as follows:

"Six years have elapsed since our National Dental Association was organized by the union of the American and Southern Dental Association. Let us see if we have been faithful to our trust in the meantime. Have we been energetic, enthusiastic and prolific? We have produced some most excellent scientific and literary work that cannot be summed up and set before you for your admiration and satisfaction because such work is educational and therefore invaluable on account of its far-reaching influence."

In conclusion he said in part: "One deep-rooted conviction I wish to lodge in your minds as a closing thought: As our progress in the past has been due to our close relationship to the profession of medicine, to the aid, the instruction and encouragement we have

drawn from that great source, so will our future be. Then let us draw nearer, let us foster and encourage a closer relationship as our brightest hopes for the coming years.

"In conclusion I wish to thank you for the high honor you have done me in elevating one so unworthy to the dignity and responsibility of conducting the business incumbent upon your chief executive for one year. I beg your utmost leniency of judgment in criticising my efforts to discharge my duties, assuring you that my errors have been the result of inexperience and mental incapacity rather than from lack of diligence in your behalf or of devotion to your interests."

Following the president's address, the customary discussion followed until adjournment of the forenoon session.

During the preliminary meeting of the main body the executive council instituted some changes in the constitution and by-laws, one of which was changing the time of meeting to the last Tuesday in July, and another the institution of a special committee on arranging the program, this work heretofore having been done by the executive council.

Of the reports submitted at this meeting of the various committees the one of the greatest interest was pertaining to the International Dental Congress to be held in St. Louis in 1904. It is generally known that the association at its meeting last year decided to hold an international dental congress at St. Louis in 1904 in conjunction with the World's Exposition. This will be the fourth conference of the kind ever held and the second ever taking place in the United States. The first international dental congress was held a number of years ago in Paris. Several years later another meeting was held in the United States at Chicago during the exposition, and the third meeting was held in Paris and took place two years ago. The committee on the international meeting at St. Louis had a very complete and favorable report to make. The movement is having the hearty co-operation of all the dental societies of the world and new state dental societies are being organized all over the country in order to assist in the work.

In the afternoon of the first day of the meeting occurred the meetings of the sections, the meeting of the Dental Protective Association, a meeting of the congress committees and meetings of the Greek letter and inter-state dental fraternities.

In the evening another meeting of the National Association was held. A report of the executive council was made, and this was followed by a report of the chairman of Section III, comprising operative dentistry, materia medica and therapeutics, and of which section R. H. Hofheinz was chairman and F. B. Noyes secretary, and then of the reading of the papers of this section.

The first paper read at this session and before the full body was one under the title, "The Preparation of Cavities for Inlay Fillings," and by Dr. C. N. Thompson of Chicago. Dr. Joseph Head of Philadelphia and Dr. T. P. Hinman of Atlanta, respectively, followed Dr. Thompson with papers upon practically the same subject. If any one present did not possess a theoretical knowledge of this subject close attention to the transactions of this session should have made Solomons of them regarding it.

Following the adjournment of the session of Tuesday evening a smoker was given by the Inter-State Dental Fraternity. This fraternity was originated but a few months ago, and now possesses a membership of about 300. It is a non-secret order and is so closely restricted in membership that it will prove to be the most select fraternal organization in the profession. At this smoker, which was given in the main dining-room of the Battery Park Hotel, Dr. Charles S. Stockton of Newark, N. J., acted as toastmaster, and the speakers were Dr. J. P. Root of Kansas City; Dr. Geo. E. Hunt, Indianapolis; Dr. B. L. Thorpe, St. Louis; Dr. H. P. Carlton, San Francisco; Dr. R. Ottolengin, New York, and Dr. Don M. Gallie, Chicago. With this class of speakers it need not be stated that the occasion was a happy one.

The session of Wednesday forenoon was devoted to hearing various reports and the reading of the papers of Section I, of which Dr. Hart J. Goslee, Chicago, was chairman, these papers being one by Dr. N. C. Leonard of Atlanta, entitled "Adhesion vs. Atmospheric Pressure in the Retention of Dentures," and one by Dr. R. C. Brophy of Chicago, entitled "A Plea for Abandonment of the Use of Vulcanite for Base Plates." The papers and the extended discussion which followed them carried the meeting to noon adjournment.

Wednesday afternoon was devoted to clinics, and under the charge of Robt. H. Nones, chairman, and Don M. Gallie, secretary, this feature of the convention was unusually successful. Wednesday

evening was devoted to a stereopticon exhibition in X-ray work by Dr. C. Edmund Kells of New Orleans.

Thursday morning, by special invitation, the convention abandoned everything else for a visit *en masse* to Biltmore, the famous country home of George W. Vanderbilt. Biltmore station, on the Southern Railroad, about three miles East of Asheville, must be visited in order to gain egress to this vast estate, the public being prohibited from entering except through the massive arched gateway, carefully guarded constantly, which stands close in to Biltmore town. Biltmore station, which is privately supported and cared for by Mr. Vanderbilt, would remind one of "Spotlesstown" of Sapolio fame—a veritable park, with beautifully clean macadamized streets, luxurious trees and shrubs and beautiful flowers everywhere.

Entering the arched portal of the estate, which can be done only through exhibition of credentials from powers above the authority of the very officious guardian, one finds himself within a domain owned and actively controlled by one man, which consists in an area of 160,000 acres. Going from the front gate to the house three miles are traversed, but delightful miles they are. A macadamized roadway running in most fantastic curves through woodland rich in nature's beauty, now closely hugging the picturesque Swanaoia river, now diverging without apparent motive into the undulating, rocky woodland, but all the while fringed upon either side with, in addition to the natural growth of trees and shrubs, probably every variety of shrub and vine growth, artificially set by expert landscape gardeners, which are indigenous to the climate. Thirty-six miles of this roadway is maintained upon the estate, and though but comparatively seldom traversed, men with brooms sweep it daily from end to end.

Biltmore mansion, sitting in all its massiveness and richness in its immediate park covering an area larger than the average farm, can scarcely be fittingly described. Upon this estate practical agriculture is conducted—though it is said that every bushel of corn raised upon it costs \$4.00—and stock raising is extensively carried on; the finest cattle, hogs, chickens, etc., which money can produce, having here a home. Dairying is carried on upon a commercial basis, wagons from the estate delivering milk and butter in the adjoining towns. The ladies of the dental party, of which there were very

many, will testify to the excellence of Mr. Vanderbilt's buttermilk, for they drank all he had in stock. It will also go down in history that some of the men tasted it and wanted more.

Thursday afternoon and Friday morning the convention finished its labors and a congestion of the arteries of travel leading out of Asheville resulted from the general outflux of the crowd.

The following was the result of the election for 1904:

President—Dr. C. C. Chittenden, Madison, Wis.

Vice-president, for the East—Dr. Waldo E. Boardman, Boston, Mass.

Vice-president, for the West—Dr. Harry Carlton, San Francisco, Cal.

Vice-president, for the South—Dr. J. G. Fife, Texas.

Corresponding secretary—Dr. C. S. Butler, Buffalo, N. Y.

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The meeting for 1904 will be held in St. Louis simultaneously with the World's Dental Congress, and it is probable that it will be the greatest meeting ever held by the association.



A PSYCHOLOGICAL STUDY OF HABIT IN REFERENCE TO CHILDREN AND THE CARE OF THEIR TEETH.

By Charles E. Jones, B. S., D. D. S.*

I have been asked to speak upon a subject of cardinal importance—a subject that should be inculcated into the lives of the growing generation; and in no place, next to the home, can so much be accomplished in regard to cultivating the habit of personal hygiene as in the schoolroom.

A teacher or instructor in our public schools comes into a child's life at a very critical period—at a time when that child begins to select personal habits. The child has imbibed the influence of the environments of home life, and now a new epoch has been opened up to him. ~~He enters upon it with enthusiasm and no thought of the future.~~ At this particular period the boy and girl begin to judge their environments and surroundings. They select their playmates. Little sprigs of pride in the girl begin to grow; her vanity becomes apparent. The boy tries his skill in athletics; he competes against other boys. Right at this period in a child's life, ladies and gentlemen, begins the inception of acquired habits.

The home tends to accelerate the innate or primary instincts of the child. The school tends to develop and broaden secondary qualities or habits.

Primary instincts are the common lower impulses and are inherent in the psychoplasm from the commencement of life (especially the impulse of self-preservation). Hunger and love are innate, and we find many of the other characteristics of the child to be primary instincts and not habits. Therefore, the differentiation between inherited qualities and the acquired conditions or habits would require a careful introspection and analysis of mind-states and environments. This would involve a further consideration upon the relative gradation the child occupies in the animal kingdom—a thing we can consider only partially at this time.

As I have said, the home simply builds and broadens the primary or inherited qualities. This assertion may seem to narrow the scope of the home. But when we realize the enormity of evolution and how man has developed, we can readily see that the time from birth to the time a child enters school life is far too short for the parents

*A lecture before the Du Page County Teachers' Institute.

to curb the detrimental instincts the child inherits from its progenitors or to stimulate the good they possessed.

Six short years is far too little time for a mother to instruct her child in all the phases of life. A mother teaches her child in an empirical way. The child has supreme confidence in the good faith and purpose of its mother or father. And, therefore, no question is raised in its mind regarding their intention.

Education deals in explanations. It exhumes for the child a consideration of its environments and mode of life. Therefore, education teaches the child to compare and accept for a purpose. The mother possessed the same view of the child's training, but her empiricism left him no chance for intellectual development. She selects and compares for him. Education alone supplies this deficiency so apparent in home instruction.

It is true that habits are developed at home, but a great susceptible condition seems to come into a child's life about the time it enters school. It is no doubt the most plastic and impressionable period of life. If the period between twenty and thirty is the most critical in the formation of intellectual and professional habits, the period between six and twenty is more important still for the fixation of personal habits.

Personal habits are developed by the co-operation of the intellect and the susceptible primary instincts that the child possesses.

The higher grade of development of habits is surely intimately connected with the development of intellect and education.

A child's mind is subject to modifications under the laws of adaptation. And these modifications usually arise from the change of habits. The selection of habits depends partially upon the plasticity of the mind and partially upon the inherited qualities. The divergence of psychic character leads to selection of new habits, and these habits become instincts in future generations.

When the child enters the schoolroom he has reached that age where he recognizes new forms and modes of life, and from them selects a major or minor portion of their detrimental or potent qualities.

The child may select habits which are difficult of execution, or they may be of a very incompatible nature. But, as a rule, the more easily executed the more liable the habit is of becoming a fixture in his life.

I do not believe a child should be aided in every detail regarding the acquiring of personal habits. It allows the child to form a habit of reliance; still a sufficient amount of the detail should be carried by the instructor, lest the child becomes weary through weight of the detail.

In the teaching of a child along the line of personal habits we have especially to consider the weakness of the will; if we do not make our demands too extravagant and do not press them too often we may readily cause the child to adapt its plastic self to almost any reasonable condition.

If an act requires rigid attention and every concentration of attention is an act of will, the instructor should display a willingness to carry a portion of the detail until the child had formed a habit of the new feat or act.

The innate qualities of psychoplasm may be at great variance chemically and otherwise in different individuals. The great designer of the universe may have prepared each embryonic cell of different constituents, and this synthetic condition of each cell no doubt causes the great variance of inherent and susceptible qualities so apparent in different children. These sometimes apparent and at other times hidden differences in children should be studied by the individual teacher, and the plastic child should be stimulated by careful manipulation lest he acquire habits of a detrimental character. The weak and unsusceptible child must receive strength, and examples must forcibly be placed before them. But the boy or girl who selects habits unfitted for habitual use should be carefully guarded lest they develop habits of indifferent value or worse. What is the significance of the formation of a habit? We do an act by a great personal effort of the will and intellect; we repeat it until it is done with ease; it becomes an automatic movement, so to speak; the higher centers of the brain are not belabored with the detail of the act, consequently they are free to direct vital impulses along other channels.

Habits diminish fatigue and simplify our movements. Habits also diminish the conscious attention with which our acts are performed.

Now, with the above considerations before us, have we not learned that a child is most susceptible at the age when it enters school life. Does not then devolve upon each teacher present the duty of drilling

these embryonic minds and bodies in the channels of personal cleanliness?

Booker T. Washington, whose great life deals with a psychological study of men in all grades and ages, says, "At Tuskegee Institute the first requirement we make of the neophyte student is that he shall own a toothbrush. I carefully watch the development of that toothbrush, and when I find that three or four of them have disappeared and the student of his own accord asks for another, I then feel that the foundation for his moral, mental and religious development has been laid."

So you see this wonderful teacher and uplifter of human minds realizes the importance of the toothbrush and a cleanly condition of the body.

While it is true that only 30 per cent of the people have their teeth looked after, yet over 90 per cent have received instruction in an institution in this or some foreign country. Is this appalling negligence due to our teachers?

I do not expect the teacher to fully supplant the parents in the drilling of pupils along the line of personal habits. But we can expect you to impress the situation upon the child by calling attention frequently to the condition of the teeth and their care.

The smattering of physiology taught in the school does not completely open up the subject to the child. Therefore I trust that you will consider the following suggestions I may have to offer. And I hope that what I am going to say may aid each teacher in preserving those life-sustaining organs, the teeth.

Young minds, as I have tried to show, are very susceptible, and they, as a rule, understand the situation, especially if told the calamities liable to follow the neglect of the teeth and mouth. These same children will become parents of the community in their turn, and they will have the advantage not only of having better teeth and cleaner mouths, but of being in a position to care for their own children. This great habit of personal hygiene when cultivated in a people should become a primary instinct in their posterity.

You are all familiar with the importance of the teeth, and surely realize that a proper mastication of food must take place or the stomach becomes belabored with the extra burden of preparing the half masticated food for its proper assimilation.

The stomach, when called upon to take care of food which has

been half masticated, rebels or fails totally in performing its function, and we have conditions arising as follows: Indigestion, dyspepsia, nervous disorders, headaches, etc. In connection with the above abnormal conditions we have a general breaking down of the entire system through lack of proper nourishment, a general debility, so to speak. A great many or perhaps a majority of the ills and sicknesses of the human race are caused by a deranged stomach. And this pathological or abnormal condition of the stomach has been caused primarily by the teeth failing to perform their function; and the burden of sustaining life devolved upon the stomach, which could not cope with extra labor, consequently the above morbid conditions.

To bring about the perfect mastication of food we must be possessed with the proper organs, the teeth. The importance, then, of keeping the teeth in proper condition, so that their functional activity is not impaired, can hardly be overestimated.

From the time that fusion takes place between the ovum of the woman and the spermatozoa of the man we have a development and growth of the teeth. Nature provides suitable environments and conditions for their creation and sustenance. But environments metamorphose, so to speak, and we have that destructive condition that seems to attack all organic life and displays its detrimental function upon the teeth at a very early period.

Bacteriologists have sought out the cause of this destruction of our teeth, and they have enlightened us as a people upon this cardinal subject. They have isolated micro-organisms whose products and by-products produce decay and disintegration of the teeth. These micro-organisms are organic life and they, like all organic life, need suitable food and a favorable environment for their development and sustenance.

The mouth forms the most suitable environment for their development because it possesses the proper temperature, moisture, and its contents are rarely ever exposed to direct sunlight, which has a detrimental effect upon the life of bacteria.

The particles of food left between and around the teeth, after decomposing, become suitable food media for micro-organic life. They subsist upon these particles of food, digest it and eliminate a product of acid reaction which attacks and destroys the teeth.

After discovering the cause of caries of the teeth bacteriologists sought out a plan whereby this micro-organic life might be suspended

or destroyed, and the culmination of their experiments has brought forth the solution that we must remove this life-sustaining media upon which these bacteria grow.

How to remove this condition brought forth the subject of how was its removal most likely to be accomplished. And they came to the conclusion that only a mechanical function applied in the right direction would consummate the desired end. And the toothbrush in its various forms and its adjuncts, such as mouth washes and tooth powders, have materially aided in destroying the destroyer.

You perhaps might ask if these micro-organisms are contagious and disease-producing. Answering, we would say that they are, and are ever ready to inhabit any condition that offers suitable life-sustaining properties. Therefore, if the temporary teeth are allowed to decay through neglect or uncleanness of the mouth, you can readily understand that the cause of decay existing in the temporary teeth would be readily transferred to the permanent teeth. The habitual uncleanness of the mouth during the life of the temporary teeth would naturally continue while the permanent teeth are coming into position. You can surely see the importance of instructing the child upon the early care of its temporary teeth lest the habit of cleanliness will be developed too late in life.

Habit, with its inherited attributes, has become a prominent factor in evolution. As I have said, habits cultivated in a people become instincts in future generations. The precedent of a nation is simply another name for her habits, and she follows closely her custom of habits. She acquires the habit of dealing with national questions upon a certain basis and ever after her precedent is established, her habit becomes now a simple formality through which state questions are handled.

If, then, nations adopt habits for the conduct of governments; if habits or precedents establish a simplicity by which grave questions may be handled—why is not habit good for the individual, the child, the youth and the man, as well as the nation?

If each act in life required conscious attention the whole economy of our existence would be consumed in the performance of a few acts. If the acquiring of cleanliness of the teeth required rigid attention, what would become of the more apparently significant questions of the day? But we are blessed with the function of retaining not only a mental perception of all our acts, but a faculty of applying again and again once learned physical acts.

Therefore, with the consideration of an individual's application to habits and with a fairly good conception of the destructive factors in connection with our teeth, are we not enabled to instill into each child's life the importance of personal cleanliness, and especially the care of the teeth?

I believe that each teacher should prevail upon the child until he has developed a habit of personal hygiene. But you cannot become enthusiastic nor can you instruct upon the subject sufficiently unless you have acquired proficiency and understand the merits and good derived from so being and so doing. So acquire the habit of cleaning your own teeth daily. And when a contrary condition becomes apparent in a child you will at once perceive and understand the needs and how to bring them about in the child.

After you have read your Preyer upon "The Mind of the Child," and especially the chapter upon "The Will," in his admirable work upon "The Development of the Intellect," then read Professor James' work upon "Habits," and with your understanding of psychology, and with the co-operation of a good intelligent dentist, you can readily handle the situation.

Remember that the time at which a child enters under your care is the most impressionable in the child's life, and in this same period begins the eruption of the permanent teeth and they continue to come in until long after the child leaves the public school. The temporary teeth should be retained in position until the permanent teeth cause a loosening by absorbing the roots of the temporary ones.

When personal habits are developed fully they display a tendency to shape and construct other habits, especially those of a normal nature. This phenomenon can be accounted for by one of the elementary laws of association, which is: When two elementary brain processes have been active together with or in immediate succession, one of them on reoccurring tends to propagate its excitement into the other. Some one brain process is always propotent above its concomitants in arousing action elsewhere. Therefore, if any one particular portion of the neutral elements is sufficiently developed to form a habit or automatic movement of personal cleanliness, we can readily see that whenever its action is exercised its predominating excitation has a tendency to stimulate into action incipient impulses or create new ones of similar nature.

This accounts for the view Booker T. Washington has taken of the development of the habit of keeping one's teeth cleaned. And it may also be said that association accounts for the general uplifting education gives humanity. It lifts us morally, intellectually, spiritually and our whole character in general. Association also accounts for the universal degeneration of man in all the above when he has contracted one unprincipled habit. Is not the potent quality apparent in the development of one cleanly habit because of its influencing tendency upon other habits of a similar character?

I shall now take up a discussion of the care of the teeth. The teeth should be cleaned twice a day at least. Use a good tooth powder once daily, just before retiring at night. Keep the teeth cleaned during sickness, as at such times they are more likely to decay than any other.

Break the child of the habit of thumb sucking or sucking a pencil or penholder. Habits like these or similar ones deform the faces of children more than any other factor. When the bones of the face are developing the sucking action tends to constrict and narrow the lower half of the face.

Gum chewing has its good qualities as well as its bad. Although I deplore the habit, the action of compressing the gum between the occluding surfaces of the teeth tends to pick up every particle of food lodged thereon. This action of the gum, as you readily see, has a tendency to remove the food particles upon which bacteria subsist. After chewing the gum for a few minutes, it should be discarded; it simply becomes permeated with decomposing food particles.

The eight years a child spends under your instruction is just the time when the greatest care should be exercised, for the reason that parents as a rule do not think their children's teeth need attention until they are in a very serious condition. But with an intelligent understanding of the condition arising from neglect of the teeth, you should be able to convey the importance of their care through the child to the parents.

I trust that you may make a deeper analysis of this subject than I have been able to give you. The good derived from your familiarity with the care of the teeth, when properly applied, can never be overestimated.

When a child has been instructed sufficiently by every possible factor known we need have no fear or anxiety about the condition of

his after life. If you keep him busy each hour of the day, during the plastic period, we may safely leave the final result to itself.

I have refrained from taking up the subject in a thoroughly psychological way, because I did not wish to burden you with technical phrases and the unfathomable basis with which psychology handles the subject of habit. I therefore leave much for your inference.

TO RECENT GRADUATES.

By an Old Practitioner.

To the Editors of the AMERICAN DENTAL JOURNAL:

Dear Sirs: During a conversation with your Mr. Gray he suggested that I might give him some thoughts that would be of use in the new journal that is already securing a large number of readers and strong position with the many dental journals of the day. I send you a few thoughts that may be read by the graduate who is just leaving college with his prized diploma in his pocket. I was for years a trustee of almost the oldest dental college in the world—the Ohio College of Dental Surgery, located in Cincinnati, O. As trustee I have handed to many a graduate his diploma and warmly wished him success in his chosen work. It is a time of anxiety as well as gladness to a young man, as men of experience know so well. Many of the real difficulties and disappointments a young man has to meet with when he announces himself as a practitioner. It may be in a town or village newspaper. He reads it over with pleasure and hopes every reader will note his first essay in public life. He remembers what he was taught at college of the dignity of the profession, and he discards everything that indicates cheapness of his labor or depreciates the labor of his compeers. His name and sign will be as modest as his advertisement, and both in harmony with the ethical laws allowed. But it occurs to me that he can do something more than that, and not in any way violate the highest sense of professional training. The fact is so universally known that methods in every department of professional life, and certainly in all departments of trade and commerce, there is an intense desire in every form of publicity, to let the people know what they have to sell and cheapness of their wares. There are specialists in medicine, and I regret to say in our profession, that are humiliating to men of education and ability, who have and are doing so much to

bring and keep the high standard of dentistry before the people; and the thought occurs to me, is there any room or method left which a high-minded young dentist seeking for the favor of the public can adopt and put in practice, at the same time not jeopardizing his standing or injure the reputation of the alumni or his college? I think there is. My first plea for my plan is that the public at large know comparatively little about the teeth and what the dentist can do to prolong their useful service. The dentist services are spoken of as a painful operation, and so it has been largely in the past, but the people don't know the great improvements we now have that diminishes so largely the pain that could not be avoided. Perhaps there is no more different impression that could be made in the public mind; that when a person, a child with its first set of teeth, if regularly examined by a competent dentist, may learn that it is a pleasure to visit a dentist's office to have his teeth examined. When the permanent set comes it will be his pleasure then to have similar treatment. We all understand and almost universally accept the scientific demonstrations of my friend, Dr. Miller, on the theory of decay, and are able to practice methods that prevent the developed micro-organism from destroying more of the enamel and dentine, and the conviction has been made by some of our most eminent practitioners that if the teeth are kept thoroughly clean from debris of decaying food, a healthy and perfect set of teeth may be secured for life, or many years.

Now what do I propose that the young graduate may do to enlighten the public about these important and, I may say, tremendous truths? I will state that after he has been located some months where he is known or where he is almost a stranger, and only known by his brother practitioners, let him revise all his notes he made at college when studying the anatomy of the head from the shoulders up, and when he knows every nerve and blood vessel that contributes to the marvelous operations of that part of the wonderful structure he has chosen as his life work, then let him have constructed a series of pictures representing every part, so they can be easily seen by all. If you have a stereopticon instrument so much the better, but if not, do as I suggest.

- 1st. Picture the skull with its alveolar process.

- 2nd. The location of pulp nerves and the formation of a bony

substance, its growth, the development through the alveolar germs, its place in the jaw.

3rd. The absorption of the first set and the muscles of the permanent teeth, just ready at a certain time to take the places of the deciduous teeth, and development of permanent set.

4th. The nervous system of the fifth pair of nerves and the hair-like nerve that connects with this wonderful arrangement.

5th. The decay of a tooth as Miller proves it, and how you are able to prevent its further decay.

This is my method of letting the public know something of the science and art of our profession and quite in harmony with the methods of the day, publicly assisting and instructing the people.

Do not let a mistaken idea of professional etiquette deter you from lecturing with the pictures I suggest, as you will be quite in harmony with the new methods now adopted by some of the leading colleges and universities of this and other countries. The Chicago University sent several lecturers to the city of Cincinnati last winter, who lectured on some of the leading themes of the day; and yet so completely has this theme of the preservation of human teeth to popular audiences been overlooked that such lectures as I suggest would be a novelty. The profession at conventions admirably describe the great facts of dentistry. Tell them also to the people. Perhaps if Gray would procure pictures such as I describe, or, better, by some artist, there would be a reasonable demand for them. There will be a demand for all the graduates who wish to make their noble profession public and profitable.

JAMES LESLIE, D. D. S.



THE RELATIVE AND COMPARATIVE MERITS OF SURGERY AND PROSTHESIS IN THE CORREC- TION OF HARELIP AND CLEFT PALATE.*

(By G. V. I. Brown, M. D., D. D. S., Milwaukee, Wis.)

It is a far cry from 1764, when Le Monier first closed cleft palate, to the present, 1903.

The brave men, surgeons and dentists, who have struggled with the difficult problem of giving relief to those half dumb, grief-stricken unfortunates, who, bowing to the inevitable, have been doomed to pass through life marked by the hand of a fate no man can understand; in, yet not of the world; among, not of their fellows; living in the depressing gloom of a shadow that the sunshine of hope could never fully penetrate or quite dispel, deserve a notice we cannot give them to-night, through want of time, not inclination.

The hopes, fears, trials and disappointments of our predecessors in the work have traced two lines along the record for our benefit, and those, as we set them over against each other, are found to be prosthesis and surgery, mechanical ingenuity versus surgical skill.

Which has done the more for humanity it is difficult to say. Each has done much, yet neither has filled the full measure of its intended office. That there can be no just comparison between the prosthetic appliance, an irritant at best, and natural tissue, as a covering for the mouth, cannot be denied. Protection to the nasal passages, the eustachian tubes and mucous membrane of the pharynx afforded by successful operation must be more beneficial and a greater preventive of disease than a plate or obturator of any form.

This much then acknowledged, we have left us for consideration two propositions.

First: Why has the use of obturators been necessary heretofore, and what has been shown to be their objectionable features?

Second: Is it possible, by modern surgical methods, to do away entirely with mechanical devices of any kind for covering the fissures in cleft palates in all cases, and can as good, or better, speech results be secured with natural as with artificial vela?

Obturators have been required, as being the only relief possible, for patients whose cases were beyond the reach of surgical skill, according to old methods. Therefore, any benefit thus conferred

*Read before the Odontological Society of Western Pennsylvania, March, 1903

was a great one, and even a slight improvement in speech was a boon beyond price to the individual, one not to be slightly estimated.

It is true that palates, resulting from surgical operations unskillfully or improperly performed, are often so stiffened by cicatricial tissue, and sometimes drawn so tightly that the velum, instead of being flexible, yielding to the slightest muscular movement, as it should in order to perfectly perform its part in the office of speech, is incapable of rendering assistance by raising and lowering as it should, in which case it is fair to assume that, if an obturator with a flexible velum had been adjusted with the greatest possible care and perfection, it might have been as much, or even better, assistance in speaking.

Thus, the utmost limit of comparison might be said to be a poor or imperfect surgical result with the highest degree of perfection, practicable for prosthetic apparatus, and still we have left to consider that difference always recognized between an artificial denture and natural teeth; crowns or bridges on roots in situ and teeth upon plates.

We have also the additional difficulties of uncleanness and the perishable nature of most materials, especially rubber, in contact with the offensive secretions due to hypertrophic conditions of the nasal mucous membrane, omnipresent under these circumstances.

By a system which it has been the chief object of my life to perfect during the past few years, of my almost absolute devotion to it, every form of cleft palate can be closed by operation. The reasons for this statement will be better understood by a study of the following outline of operative consideration.

Generally speaking, it has hitherto been understood that certain forms and conditions of cleft palate could be cured by operation, while for others, operative measures were comparatively useless.

For example: In early infancy, from birth to the third month, or where the fissure was not too wide and the sides of the palate favorably shaped, operation was indicated. With adults or older patients, having unfavorable clefts and palates, a prosthetic appliance was likely to prove more useful.

The reasons why the suggestions herein set forth are dignified with the title of a system is because, by a systematic application of orthopedic principles, all forms and conditions of these deformities are brought to a nearly common plane, through the readjustment

and correction of unfavorable conditions, with due recognition of those differences which distinguish simple from difficult or impossible cases.

When children are born defective in lip or palate, or both, the question naturally arises as to whether an immediate operation is advisable or not.

In favor of operation in early infancy, it may be said that the jaws, not being fully ossified, are in a sufficiently plastic state to allow their being easily crushed together, and the separation closed immediately by operative measures; that the later widening of the cleft which follows, if cases are neglected, does not occur. The child takes nourishment to better advantage. Speech habit is assured, since with the covering to the palate from the beginning, little or no opportunity is given for the establishment of imperfect speech.

The objections are: First, high rate of mortality among infants under surgical operation of any kind; second, in such cases, the added danger of meningitis from infection or pressure, or both, must be considered; third, loss of vitality from hemorrhage and other direct effects of operative procedures, in spite of the admitted fact that shock in the common acceptance of the term may not be so serious a factor in infancy as in later life; fourth, disturbance of the digestive tract and consequent loss of nourishment, due to mouth bacteria and difficulty in taking food incident to the sutures and plates with which the parts are secured, must be considered with reasonable gravity; fifth, it is the belief of the writer, based upon observation and experience, that the characteristic appearance of the face, nose and lip, resulting from arrest of development following radical operation in early infancy, is not so good, nor is the soft palate, usually obtained in the haste that, with the newly born, is imperative, likely to be so perfect or afterwards so useful as one treated under conditions where more deliberate methods are possible.

To maintain the advantages and avoid, at the same time, the disadvantageous conditions of early operation, should then be the purpose of any line of procedure in these cases.

In order that increase of deformity by neglect may not occur, it must be remembered that, at birth, the lower jaw has undergone ossification much in advance of the condition of the superior maxillæ and bones of the nose and face. Therefore, the crowding of this wedge-shaped harder body between the soft, yielding and ununited

lateral portions of the palate by the muscles of mastication exerted in efforts to suck and in taking food, must force them farther apart.

In crying and laughing, also, the muscles of the mouth and cheeks pull apart and influence, in a marked degree, widening of the intervening space. Therefore, if early operation be considered an unnecessary danger, the first necessary step must be to protect the child from greater distortion, and if possible to reduce the deformity.

Unequal development almost invariably is noticeable in these cases.

My method of wiring, to correct this feature and to simplify the lip operation by reducing the width of the lip and palate fissures, and in addition to insure a straight nose for the individual, as well as regular facial appearance, has been described in a paper read by me before a section of the American Medical Association, but even this method I have since been able to make more simple, where the infant can be placed under treatment sufficiently early.

With strips and bandages properly applied, the lip may be bound with the sides of the fissure in contact. This gives little or no inconvenience to the child; enables it to take nourishment by sucking naturally, thus aiding its development and preparing for the success of a future operation. The action of the lower jaw cannot, under these conditions, crowd the parts and increase the palate deformity, while laughing or crying exerts muscular power to reduce the separation instead of widening it, and stretches the lip so that usually there is an abundance of tissue, where otherwise it might often be so scant as to make artificial results extremely doubtful.

The story of orthopedic surgery is a simple one; mechanical correction in the form and character of osseous structures and revision of maladjusted ligamentous and muscular attachments of articulating bones until, by ingenious application of the one all important principle, that bodily tissues, under all circumstances, yield to steadily exerted pressure.

Many of the more radical surgical procedures in the treatment of these cases have been done away with. Obviously, then, if the palatal fissure be too wide and the lateral surfaces of the palate too flat, to admit of a successful surgical operation for immediate closure, the space to be bridged across the fissure must be made narrower, and the angles of the side more accentuated in their slope in order that, when stripped away from the borders of each side, the periosti-

um and other tissues, when brought down in the center, may meet without tension, by simply making the arch of the palate flatter.

The advantage of this procedure in operation has long been recognized where the mouth was naturally favorable in form, but so far as I am able to learn, this method of correcting the shape of every unfavorable mouth, so that it may be converted into the best possible condition for successful surgical operative purposes, is original; yet, a moment's thought in consideration of the following propositions will make it clear to any one that there is practically no limitation to the possibility of this work.

If the patient be one in early infancy, simple harnessing of natural muscles, as previously described, is sufficient. At one year old or a little later, appliances attached to deciduous teeth, admitting of gradual pressure being exerted by nut and screw thread, will, without serious disturbance, overcome the natural difficulties almost entirely. Operation is then not only easier but safer, and yet speech defects have not had time to become established habits.

In later life, either by fracture and immediate moulding of the parts with splint, to hold in the desired form, or weakening of resistance by cutting the external walls of the superior maxillary bones partly through, especially, at the malar processes and in the region of the tuberosity, an appliance similar to the one used for younger patients may then be used to accomplish the purpose of reducing to ideal form very nicely.

Whatever the method of correction may be, and no matter how perfect it may be accomplished, whether by surgical or prosthetic means, with natural or artificial agents, the immediate results, as regards speech, will be disappointing. Just as one finds it difficult to pronounce the words of an alien tongue, and in attempting to do so, is not conscious of the accent which proclaims to all, the place of his nativity, so with the wearer of an obdurator and the possessor of a new soft palate. The old defects will remain, until eradicated by careful study and patient application.

The reason for this obstinacy upon the part of these adjuncts to speech mechanism may be better comprehended by a cursory glance at the complexity of the performance of this function.

Briefly stated, we understand that in speech the muscles of the chest, which are responsible for respiration, the muscles that raise and lower the larynx, those that tighten the vocal cords and tip the

hyoid bone, as well as resounding properties due to the nearness of the spinal column, and the co-operation of the forces that are applied in raising and lowering the soft palate, the adjustment of the tongue, proper action of the muscles of the cheeks and lips are all necessary for the utterance of even a single word. If, therefore, during the life of the individual, through faulty operation or adverse action of these agencies, wrong messages have been constantly sent to any portion of the brain concerned in making a certain sound, and if the auditory memory centers have registered by the constant hearing imperfect sounds for specific words, which will accordingly have caused the development of brain structure which is all active against correct speech, and if there be an insufficient development of those centers which are needed for perfect speech, how great becomes the difficulty of giving a speech power to individuals in the face of all these acquired disadvantages.

With these simple principles in mind, I would call your attention to the phonographic records of the speech of a young woman twenty-two years of age at the time of operation. The first, you will notice, is almost inaudible, although taken with great care. The cast of the mouth of this patient shows cleft through both hard and soft palates. After operation, we find her able to make sounds more clearly, and yet, the unpleasant defects are still very noticeable, although the third record taken a few weeks later shows much improvement.

Other records that I have here, taken from similar cases, show about the same results; all improved, but none were immediately perfect.

One patient, whose speech is indicated through the phonographic records, was fourteen years old last September, when her palate was closed by operation. The graphophone demonstrates that she could scarcely make an intelligible sound at that time, having been one of the most difficult patients to understand in conversation that I have had. To-day, you will find, she recites quite well the few lines that she has been taught to say with special reference to overcoming bad speech habits.

There were many words in the few lines to which you have just listened that were exceedingly troublesome, and one by one each had to be overcome. For example, she always said "yeterday" instead

of "yesterday," and as all such patients do, hurried over the words and syllables that could not be pronounced without assistance from the palate before operation. I found that by using the voice as in singing, the tendency to slur certain letters was most easily mastered. In this manner, every case must be studied and individual peculiarities noted, for these patients do not all have the same defects, as is commonly supposed.

In conclusion, I feel warranted in saying that, even with a full realization of the difficulties and uncertainties of this work, there can be no case of cleft palate that may not be closed by operation and treatment, if persistently and systematically pursued.

The possibilities of speech improvement are limited only by patience and opportunity and are dependent almost wholly upon the intelligence of the patient.—*Summary.*

WANTED.

Copies of the March number of the AMERICAN DENTAL JOURNAL.
FRINK & YOUNG.

WHAT A CHICAGO DENTIST THINKS OF THE AMERICAN DENTAL JOURNAL.

July 26, 1903.

I just want to say to you gentlemen that the AMERICAN DENTAL JOURNAL is O. K., and contains features appreciated by all readers and not found in other dental journals. We all appreciate a little humor with the many grains of good sense. It is readable.

Yours truly,

A SUBSCRIBER.

GOOD MAXIMS IN VERSE.

Sometimes Go Wrong and Spoil the Meter.

By R. B. Tuller.

The way for to do is to do;
Don't lally and linger and drone;
There's many a task "up to you"
That by nobody else can be done.
Postponing can rarely diminish,
And there must be a start 'fore a finish.
If you're longing to win,
Face the music and grin,
Then spit on your hands and pitch in.

How now, Mr. Young D. D. S.?
You hanker to get to the front;
But are you not making a mess
Because you won't tackle the brunt?
Tooth pulling you chose as a calling,
Pull! pull! though you set people bawling;
You are in it to win,
And, though pulling's a sin,
Just spit——

Gee whizz! No, stop there! Don't do it. Go over to the bowl and wash 'em. Use a nail cleaner. Clip hang nails. Rinse your mouth with some nice refreshing mouth wash. Spray a very little *delicate* perfume on your left shoulder (next to the patient), then tell patient you don't pull teeth—you save them—and if you think you can save—pitch in.

SKELETON WITH GOLD TEETH.

Believed to Prove That Dentistry Is an Old Roman Art.

A special cable dispatch to the Chicago Record-Herald dated Rome, Aug. 15, 1903, says: A woman's skeleton with a full set of gold teeth well arranged in a plate is said to have been uncovered in digging for a cellar for a house on Rozella street. It is asserted by some that she must have lived in the time of the ancient Romans.

ANODYNE REMEDIES.

By N. S. Hoff, D. D. S.

Read before the Central Michigan Dental Association, May 14, 1903.

The meaning of the term anodyne is "to be without pain." Therapeutically it is that which assuages or relieves pain. To define the term for our purpose we must consider the therapeutic application of this class of remedies as used in dental practice. They are sometimes referred to as analgesic or antalgic remedies.

Anodynes may properly embrace all agents which will relieve pain in any measure or by any method. Somnifacients, anesthetics, narcotics, obtundents, demulcents, emollients, sedatives, correctives of various kinds are examples, because they may be employed to overcome painful conditions. A narcotic may be used as an anodyne remedy, but it may also be used as an anesthetic. An anesthetic is, however, rarely used to overcome pain, but to prevent it. For convenience we may separate the anodyne remedies into two classes: Those having a local use only and those having general or systemic application. We shall, however, find that some anodyne remedies have both a local and systemic action.

Local anodynes are those which act because of physical or mechanical properties—heat, cold, electricity.

They may be remedies of the chemical form; used easily as local applications for local effects, or to produce local effects from central or systemic action. We also have operative procedures, including all surgical means used to stop pain.

Systemic Anodynes.—The systemic anodynes are those which are used in the drug form having properties which overcome pain from a central action upon the nervous system through organic functions. The anesthetics might form one class; the narcotics another class; the cardiants, or those remedies which affect the blood circulations, a third class; and a fourth class the organic stimulants which are used to produce revulsive effects by depleting tissues which are locally congested, through some other organ or tissue which the drug stimulates inordinately or at least to the extent that it eliminates plethoric conditions which cause pressure and pain.

It is only when some extraordinary impression is made on the nervous system or the organs influenced by it that it becomes irritable or painful. The nerves of sensation of the mouth and face

largely pass directly into the skull to the brain without passing through the spinal cord—as do the nerves of the trunk—and dental pains are generally severe and without systemic complications. Curing toothache by stopping the cavity or treating the tooth only is but one method. Pain may be felt in exposed dentine, but not be due to it, but to an impediment on the nerve trunk at some point in its course. Intense toothache is not always due to exposure of the dentine, but possibly to an internal nervous disorder. This is particularly true of neurasthenic people; and treatment of the tooth itself in such a case, with the idea of allaying the pain, would be futile. We must comprehend pathologic conditions and be able to determine the seat of the pain before we can apply intelligent treatment. If we know there is pressure on the nerve tract due to a growth in the bones through which the nerve passes, we may operate for its cure. If the pain is in the brain we may anesthetize the patient and secure temporary relief; or we can narcotize with a general nervous sedative and overcome pain by relieving the irritability in the brain. For pain due to irritation of the peridental membrane we can inject into the membrane a little cocaine and temporarily relieve the pain, but this may not cure the trouble. We can also give a general anesthetic and anesthetize the brain so that our patient feels no pain. In other words, the exciting cause of pain, which may be anywhere in the nervous tract, must be reached to get permanent results. We apply these remedies to remove permanently the source of irritation if possible, but it is not always possible to do this, and as an expedient have to temporarily deaden the perceptive senses.

The first effort should be directed toward removing the local cause if possible, when the pain is of a peripheral origin, thus preventing its effect upon the cerebrum and other possible systemic effects. This we might do by cutting the nerve which carries the pain stimulus to the brain, but is not often practicable, since it destroys the physiological function of the nerve, and also because it is difficult to locate and isolate in the facial tissues the particular nerve involved; and it would necessarily involve other important nerves. It is, however, practiced in the extirpation of live pulps. Nerves are sometimes stretched, but this is also an extreme procedure. A much preferable procedure is to narcotize without shock either the nerve endings in the inflamed region of the cerebrum or the nerve tract. Morphine has the property of narcotizing the nerve ends, its trunk

and the perceptive centers in the brain, but has most influence on the brain centers. Atropine excites the brain centers while it narcotizes the nerve trunk, and particularly the nerve endings; when given internally it produces a depression of feeling at the periphery while the brain is excited. Because it produces this internal stimulation, atropine is usually classed as a systemic excitant. Cocaine has largely the same centric action as atropine, but has a most powerful peripheral and local narcotizing action. Probably this is the most profound local narcotic we have, but has such stimulating effects on the brain that reflex impressions from other parts of the body will be greatly magnified, while the cocainized area will be obtunded. Cocaine is a systemic poison only when it produces centric paralysis. Cocaine has experienced a good deal of disrepute because careless operators have ignored these facts in using it; they have failed to use it in such a way as to produce the greatest amount of local paralysis with the least amount of central excitement. To do this cocaine must be used in sufficient quantity to completely paralyze the reflexes in the tissue upon which the operation is to be made. If only partly paralyzed a reflex shock results from the already excited brain centers and sensations of hysteria with other disagreeable nervous and organic symptoms ensue. In such cases the blame is the operator's. Small doses, but sufficient, should be used and in the best way to secure the greatest amount of local paralysis. The disagreeable phenomena come from not recognizing the effects of the drug on the central system.

Chloral and gelsemium seem to have especial influence on the fifth nerve; they are more used than any other remedies by the medical practitioner in treatment of neuralgia of the head and face. They are not local anesthetics to the same extent as cocaine, but are narcotics like morphine. We may use such remedies in preference to cocaine to prevent central excitement. If the pain is from an inflamed pulp and we cannot allay it by treating the pulp, we should administer a drug having the desired systemic action. We may give morphine, for instance, until local applications have had time to produce the desired local effects. We can use chloral or morphine, for instance, while we use local applications to overcome acute pulpitis and in this way prevent a destructive inflammation. We may also relieve local congestion and pain by the use of a cathartic which will give a revulsive effect, which acts by depleting the pulp and drawing

away the circulation locally and similarly affecting the brain centers. A cathartic will cause excessive watery evacuations; a diaphoretic will cause the patient to sweat; thus we extract the water from the blood and relieve the congestion in the brain and the inflamed local area at the same time. By relieving the congestion in the tooth and in the brain at the same time and by a single remedy we produce a single purpose by a double action. This is probably the most satisfactory anodyne treatment for cases where prompt and complete effects are desired. Simply to apply a little oil of cloves or cocaine to a highly inflamed pulp reduces the pain locally, perhaps, but leaves the brain centers irritated and excited, and reflex sensations from other parts of the body will cause recurrent pain and keep up the sensation in the brain and may show its effects in other organs and tissues of the body, even to general systemic prostration.

Systemically, we may cure toothache by mental diversion. The pain in the one brain center may be overcome by producing greater excitement in another part of the brain. By talking to people in an appropriate and pleasing way we may divert their minds from the subject of greatest interest to them at the time, so that they may not experience much pain from an otherwise painful condition. We may produce similar effects by physical or electrical shocks. By repeated applications of the electric current we may affect other parts of the brain and divert the pain long enough to permit recuperation or resolution, or it may be even dissolution in the diseased parts. We may use the cautery to cure toothache from an inflamed pulp or periodontal membrane by producing a blister on some contiguous tissue. The blister diverts the pain to a tissue which is capable of greater injury with less pain and a depleting or revulsive action also is had. If we can produce on the cheek a more powerful irritation than that in the mouth we can divert the sensation of pain to that part and give the diseased organ in the mouth a chance for resolution. We may also relieve painful conditions by application which tends to produce physical change. By applying moist heat we can relieve tension and relax tissues and so prevent pressure on the nerve endings. Cold is sometimes used for the same purpose, not to relax tissues, but to condense them and keep them from becoming distended.

If we cannot overcome the toothache by any of these anodyne

remedies we are compelled to resort to destructive surgical operations. We may extract the tooth; or, if an alveolar abscess, we may lance, drain and sterilize it. These are to be classed as pain-relieving measures and within certain limits as anodyne treatments.

One of the most excruciating dental pains ensues from acute pericementitis, and its cause can usually be traced to inflammatory infection from a putrid pulp. In such cases no cure and little relief may be expected until the source of infection has been completely sterilized by instrumental or other therapeutic measures. The most common practice is the local application of a pepper plaster or a lotion of tincture of iodine, or it may be in severe cases a blister. Such remedies always act as local remedies, with a nervous reflex action which has much to do with the successful application. This is the influence produced upon the vascular organs of the tissue implicated through the vaso-motor nerve impulses. By a reflex impulse there is greater tension upon the circulation involved and consequently revived function. This reflex action is the most valuable feature in the use of local counter-irritants, but it is usually the case that purely local results are expected or looked for in the use of this class of remedies. It is commonly supposed that only a diversion of the blood supply is secured in the use of counter-irritants, but the recuperative effect produced by the remedy on the perverted vascular functions through the nervous system is really the only true anodyne effect.

Another class of remedies having exactly opposite physiological reactions are the soothing or demulcent anodynes. These remedies have no considerable physiologic reactions, but act in such a manner as to relieve tension or irritation of the local sensitive nerves. In other words, they act mechanically to protect the exposed tissues and to prevent nervous excitement or stimulation. They are, as a rule, such agents as are insoluble, or, if soluble, such as produce slight excitement of function—oils, waxes, glucrites, mucilages, etc., will fairly exemplify this class. They find a much wider use in general medical than in dental practice. One class of these agents has a considerable and important use in dental practice; this includes the solutions of gummy and resinous substances in volatile solvents. These solutions can be applied to sensitive dentine, exposed pulps, etc., and upon evaporation of the volatile solvent there remains in contact with the sensitive tissue a more or less durable antiseptic

protecting layer of inoffensive material which protects the sensitive structures from the mechanical irritation of its environment. At the same time it may be used as a medium to hold medicinal substances in direct contact with a diseased tissue for a sufficiently long period to secure curative action. The whole scheme of pulp dressings or cap-pings and treatment of sensitive dentine, with such remedies as cavity linings or varnishes, chloro-percha, carbolized resin, compound tincture of benzoin and similar remedies are well-known medicinal examples. Generally these substances are used wholly as mechanical applications, but many of them possess good, local anodyne qualities and all may be advantageously combined with chemical reagents of known power and value for curative purposes.

To this class may be added also those corrective and prophylactic remedies used in correcting the effects or influence of perverted secretions on the sensitive tissues of the mouth, antacid mouth washes, antiseptic lotions and all measures used to prevent the progress of decay of the teeth or inflammatory irritation of the soft tissues. In this class the use of filling materials to prevent the progress of caries and to protect exposed dentine as well as the use of insoluble escharotics like silver nitrate are anodyne remedial agents of great value. In this connection it may be of value for us to take into more serious consideration than we are occasioned to do the varying qualities of our filling materials in respect not only to their durability and convenience of manipulation, but more particularly as to their usefulness in avoiding pain due to loss of the enamel or dentine, the natural protectors of the sensitive pulp organ.

Is it not time that our profession should give more attention to the relief of not only the unendurable pain of acute inflammation of the tooth organs, but to the less pronounced but very continuous irritable conditions incident to thoughtlessness or carelessness in introducing improper filling materials into too close contact with sensitive dentine or pulp organs? Such conditions may produce, through the normal sensible reflexes, systemic conditions of a most serious character, and ought not to be overlooked in our efforts to produce more permanent and durable fillings. Because we are able by the use of efficient local anesthetics to make these operations painlessly, we should not lose sight of the possibility that conditions may result which will bring much suffering to our patients.—*Register*.

WHAT PLACE HAS LOW-FUSING PORCELAIN IN DENTISTRY?

By Mr. Robert Brewster, Chicago, Ill.

The melting point of fine gold is the adapted dividing line (approximately) between what is known as high and low fusing porcelain. Some high-fusing porcelain, however, fuse 400 degrees or 500 degrees above the gold melting point, whilst some of the low-fusing bodies can only be used safely with a blow-pipe, their melting point being so low.

It will be remembered by those who have followed the subject that the original claim for low-fusing material was that gold was more easily adapted to cavities than platina, and upon this claim its use was principally urged. There seems of late, however, and more especially since tests were made in Germany with a few of the different porcelains to determine their resistance to crushing, that less importance is placed upon that most important phase of the subject, the value of gold as a matrix, than upon the strength of the porcelain. There must be some good grounds for shifting the issue; but what are they?

It has never been claimed that any of the high-fusing porcelains in general use have shown any deficiency in respect of strength, nor that anything stronger was needed. Supposing, however, that some *one* of the low-fusing bodies was stronger than *all* the high-fusing bodies on the market (which, by the way, is not the case, as my dynamometer tests have shown). That would be but an unimportant advantage as compared with the other requirements of a first-class dental porcelain, not the least of which, among the many essentials, is translucency and life-like appearance. No one who has compared the two classes would venture to claim a superiority in this respect for the low-fusing material.

Another equally important quality is that of baking flat; that is, whilst completely filling a matrix to the margins, retain the proper contour and not ball up toward the center.

Another very necessary quality is that of holding up sharp cusps and approximal extensions under repeated firing. How frequently it happens that judgment on the exact fullness of contour is at fault, and it becomes necessary to add further material. This is a comparatively easy task with a body which will fuse to a glaze and yet

hold its form intact, but is extremely difficult with a material which, the moment it glazes, begins to change form.

A recent illustration of this decided tendency in all very low-fusing porcelains to become spheroidal was made evident at the Odontographic Clinic held February 13, 1903, when Dr. Ottolengui (one of the most expert manipulators of the Jenkins material) challenged any Western man to burnish platina matrices and make inlays in high-fusing porcelain for the cavities he had prepared, one of which was a distal approximal in a canine, involving the whole of the cutting edge; the other, the whole grinding surface of a molar. The challenge was taken up by Dr. Reeves of Chicago, with the result that the inlays made by Dr. Reeves with the Brewster high-fusing porcelain were pronounced by the committee of four experts to be perfect in fit and contour, whereas those made by Dr. Ottolengui with the Jenkins material did not fit.

This incident very forcibly emphasizes the difficulty experienced even by an expert in obtaining perfect fitting inlays with material so susceptible to heat.

The subject of fusibility was duly considered in the experiments carried out several years ago by some of the Chicago dentists and myself when determining a formula for a reliable porcelain adapted to all classes of porcelain work, and no porcelain fusing below gold was found adequate. The result of six years' steady work, observation and experience on the part of the profession with porcelain of the formulae then adopted has been but to confirm the correctness of the view held at the time.

Whilst, however, the use of gold for matrices is being advocated by a few prominent men in different parts of the country, and whilst there is such a great diversity of opinion upon the subject, there will, naturally, be a desire on the part of many to investigate for themselves. As a consequence, I was asked some time since if I could not make a porcelain that would fuse upon gold and yet retain some of the characteristics of high-fusing porcelain.

Acceding to this request involved quite a long series of experiments, which, I am glad to say, have ended satisfactorily to all concerned. The departure from old lines has been radical. It would have been an easy matter to have taken my enamel body, and by treating with fluxes produced a material which, immediately upon reaching a heat sufficient to fully glaze it, would lose its form, thus

requiring some special design of blow-pipe or other apparatus to handle it.

This would have been a retrograde step, not only for the important reason given, but because there would have been lessened translucency in a marked degree; in fact, I should only have produced a duplicate of the low-fusing bodies already in the hands of the profession.

The result of my experiments on entirely new lines has been to produce what is termed a "gold matrix porcelain," having all the appearances, when fused, of high-fusing material, having very considerable strength, holding up well under fire, allowing quite a margin of heat increase without change of form, an entire absence of bubbling, and a translucency not before obtained in a material fusing at so low a temperature (about the melting point of 14-carat gold solder).

So that, whilst conceding that the bulk of opinion in this country is in favor of platina for matrices, owing, doubtless, to the trend of education having been in that direction, the opportunity is now given to every one to test the question for themselves, at very nominal expense, and without any change in their present baking appliances, thus enabling them to add to the knowledge of the subject from practical experience and be in a position to answer the question asked at the beginning of this paper.—*International*.

Ypsilanti, Mich., July 25, 1903.

Frink & Young, Chicago, Ill.—

Dear Sirs: The AMERICAN DENTAL JOURNAL just received. I see on page 470 a statement, saying that the Northern Ohio Dental Association is the oldest dental society in the world, and that it has been an active organization since 1860. Permit me to say that the Michigan Dental Association was organized in the city of Detroit in January, 1857, and has been an active body from that date. I think that there are a number of dental associations that outrank the N. O. D. A.

Very truly yours,

JOHN A. WATLING.

Note—We will be pleased to hear from other old societies.—
Editor.

CLIPPINGS

To Prevent Plaster from Adhering to Rubber in Vulcanizing.—Cover the model with tin foil, about No. 20. This can be readily removed from the plate by soaking the surface before closing the flask.—*L. P. Haskell, Chicago, Review.*

STARTING GOLD IN SMALL CAVITIES.

When a cavity is too small to use an assistant plugger and the gold rolls and does not stay in place while starting the filling it can be tightened into cavity in the following manner: The cavity should be filled one-quarter full and the gold condensed, allowing it to roll if it will. Then take a clean, dull inverted cone bur that will fill the cavity as nearly as possible, and by using high speed and a little pressure the gold can be spread until it fills the bottom of the cavity perfectly and is firm in place. The idea being to spread the gold and not cut it, a dull bur must be used. If the bur is clean there will be no trouble in making more gold cohere to what is already in the cavity. The method applies principally to small, round cavities usually found on the occlusal surfaces of upper molars and lingual cavities in the anterior teeth.—*C. E. Woodbury, Review.*

PREPARATION OF ROOTS.

In the preparation of roots for the application of dowel crowns with a band the procedure incident to the easy and accurate adaptation of the band may be greatly facilitated by allowing a projecting end of the root of about one-sixteenth of an inch to remain until the peripheral trimming, the taking of the measurement and the fitting of the band have been accomplished. Such a precaution not only facilitates the removal of enamel and the taking of an accurate measurement, but the projecting end of the root serves to properly shape the band before it comes in contact with the soft tissues, and to guide it to place in fitting, thus assuring accuracy in the adaptation and relief to the patient from the discomfort usually attending this portion of the procedure. When the band has been thus fitted both it and the root may then be cut down to the proper point and the cap completed in the ordinary manner.—*H. J. Goslee, Review.*

NOTICES OF MEETINGS

NORTHERN INDIANA DENTAL ASSOCIATION.

The Northern Indiana Dental Association will hold its annual meeting this year at Wabash, Indiana, September 15th and 16th.

J. A. STOECKLEY, Secretary.

THE FOURTH INTERNATIONAL DENTAL CONGRESS.

The fourth International Dental Congress will meet in St. Louis August 29th to September 3d, 1903.

OFFICERS CHOSEN BY THE NEW JERSEY STATE SOCIETY.

The convention of the New Jersey State Dental Society elected the following officers July 18: President, Herbert S. Sutphin of Newark; vice-president, W. G. Chase of Princeton; secretary, Charles A. Meeker of Newark; treasurer, Henry A. Hull of New Brunswick. It was decided to hold the convention next year at Asbury Park.

TENNESSEE DENTAL ASSOCIATION.

The Tennessee Dental Association elected the following officers: President, Dr. R. R. Boyd Bogle, Knoxville, Tenn.; first vice-president, Dr. T. D. Towns, Memphis; second vice-president, Dr. A. J. Cottrell, Knoxville; recording secretary, Dr. J. T. Crews, Jackson; corresponding secretary, Dr. W. K. Slater, Knoxville; treasurer, Dr. W. P. Simms, Nashville.

PENNSYLVANIA STATE ASSOCIATION ELECTS OFFICERS AT WILKESBARRE.

The second day's sessions of the State Dental Association was largely taken up with the election of officers. Interesting papers were read. The chief one of the morning session was by Dr. W. T. Reeves of Chicago, on porcelain filling, which he declared will rapidly take the place of gold filling. The officers elected are: President, Dr. G. S. L. Jameson, Philadelphia; first vice-president, C. N. Brownell, Philadelphia; second vice-president, C. U. Kratzer, Reading; recording secretary, George W. Cupit, Philadelphia; corresponding secretary, V. S. Jones, Bethlehem; treasurer, F. H. D. Swing.

A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "DEATHS" is written in a bold, serif, all-caps font.

DEATHS

NEW YORK DENTIST KILLED BY ELECTRICITY.

While groping for a cut-off button in the cellar of his handsome summer residence at Giffords, Staten Island, Dr. Francis L. Morhard, a New York dentist, accidentally touched a live wire and was instantly killed.

BURNS PROVE FATAL.

As a result of severe burns sustained by the explosion of a gasoline tank, Dr. James O. Ness, a dentist of Sioux City, died July 16th at Homer, Neb., where he had established a temporary office in a hotel.

DR. R. E. DAVIS.

Dr. R. E. Davis died of typhoid fever July 10 at Cleveland, O. He was born at Minerva, O., January 15, 1877, and obtained his education in the Cleveland public schools, after which he took up the study of dentistry at Western Reserve University. He graduated with high honors with the class of 1902. In November of last year he opened offices in the Schofield building, and, although he had practiced only a few months prior to his death, he won a host of friends and a large practice through his kindly disposition and affable manners.

DR. J. B. PATRICK DEAD AT CHARLESTON.

Dr. J. B. Patrick, one of the oldest and best known dentists in the entire south, died July 20th, in the eighty-first year of his age. Dr. Patrick was the father of five sons, all of whom were dentists. Three sons survive him.

SUDDEN DEATH OF DR. E. L. CLIFFORD OF CHICAGO.

We hear with regret of the sudden death of Dr. Eugene L. Clifford, who suffering intensely with neuralgia and being familiar with medicines and their actions, undertook of his own accord to get relief by the use of morphine and succumbed to an overdose. He was buried Sunday, last, at Rose Hill.

PERSONAL AND GENERAL

Dr. C. A. Chadwick, of Grass Lake, Mich., will soon locate in Jackson.

Dr. C. R. Rowley has resigned from the Illinois State Board.

Dr. F. W. Reinders of the Indiana Dental College has located in Carlinville, Ill.

Dr. G. H. Stone, formerly of Denver, has located in Leadville.

A movement is on foot to establish a dental college at Shawnee, Okla.

Dr. Phillip H. Simpson and Miss Mary M. Robinson were married at Albany, Ill. June 30.

Dr. F. E. Field, of Sioux Falls, S. D., has been appointed a member of the state board of dental examiners. He succeeds Dr. L. F. Straight, of DeSmet, whose term of office expires July 12, 1903.

Dr. J. Foster Waltz who has sailed for Europe to become court dentist at Dresden, Saxony, was compelled to show that his pedigree was American for several generations before he was given the appointment. Waltz sounded like Prussian to the Saxon court officials, and they wanted nothing of Prussian stock. Dr. Waltz will receive \$3,500 a year for attending the teeth of the royal Saxon family, besides what he can pick up from the nobility around the palace of King George. For several years Dr. Waltz has been instructor in the Chicago College of Dental Surgery.

PROFESSOR WOTTRING MARRIED.

The marriage of Edward E. Wottring, assistant professor of dentistry in Ohio Medical University at Columbus, O., to Miss Irma V. Masters, daughter of Dr. and Mrs. G. H. Masters, took place August 2d.

THEY GOT SOME DENTISTRY DONE.

Mr. and Mrs. Peter Vang drove to Timberland Saturday afternoon to get some dentistry done.—*Grantsburg, Wis., Journal.*

COMMITTED SUICIDE.

Dr. Louis Shaw of Brooklyn, N. Y., committed suicide July 25th, during a fit of despondency due to loss in stocks. Dr. Shaw was a graduate of the University of Pennsylvania, and formerly practiced in Brazil, S. C.

ATTACKED THREE NUNS.

William R. Selbach, a dentist of Columbus, Ohio, attacked three nuns. He is believed to be demented.

The North Dakota dental board held an examination at Grand Forks, July 14th.

PRACTICED FIFTY YEARS.

Dr. Wm. B. Hurd of Brooklyn, N. Y., one of the oldest practicing dentists in the United States, has retired from practice. He celebrated his eighty-third birthday July 5th, and announced that after sixty years of constant practice he had disposed of his office and would retire from the active duties of life.

Dr. C. F. Wherrett, formerly of Kansas City, is now located in Salt Lake City.

Dr. A. Brom Allen of Chicago has given up general practice and will devote his time to extraction, locating in Trude building.

COLORED DENTISTS' ADJOURN.

The convention of colored dentists, which met at Washington, closed its session July 4. The following officers were elected: President, Dr. A. J. Gawthney, Washington; first vice president, Dr. R. G. Baker; second vice president, Dr. A. R. Taylor, Pittsburg; secretary, Dr. C. C. Fry, West Chester, Pa.; treasurer, Dr. Allie M. Waring, Washington.

ROBBED.

Two dental parlors of Springfield, Ill., were robbed of a quantity of gold the 18th of July. The offices were those of Drs. E. A. Kartack and George M. Henderson. The theft was evidently done by the same person and by some one who understood the dental business.

DEATH FROM CHLOROFORM.

While sitting in a dentist's chair having teeth extracted, Mrs. Norah Blue of Juniata, Nebraska, died from the effects of chloroform. Before the drug was administered to alleviate the pain Mrs. Blue was examined and pronounced able to take the necessary quantity. After fourteen teeth had been taken out she revived, sat up in the chair, spoke to the dentist, and then sank back and died.

DENTAL DEPARTMENT OF MINNESOTA STATE UNIVERSITY SCENE OF BAD FIRE.

Fire of a mysterious origin in the basement of the medical building of the Minnesota State University totally destroyed the dental section of the school and threatened the entire building with destruction. All the furnishings and woodwork of the basement, in which the dental department is located, were destroyed.

FRANKFORT MAN IS CUTTING THIRD TEETH.

James Croy, one of the pioneer citizens of this county, is cutting his third set of teeth at the age of eighty-five years. Already he has seven teeth and signs of a full set. Four of the masticators have come in the upper jaw and three in the lower. Those in the upper jaw have already attained to full size. Mr. Croy had been toothless for twenty years, so far as nature is concerned. The coming of the new teeth has made it impossible to use false teeth and as the third set are in irregular position he is impatiently awaiting the coming of enough of the third set to make mastication easier.—Indianapolis Sentinel.

THIEF RAIDS OFFICES.

The several dentists' offices in the city of Henderson, Ky., were robbed of all their gold. The offices of C. E. Ward, J. R. Johnston, W. F. Redman, S. O. Marshall and J. P. Williams were the ones that suffered by the theft, which, in all, amounted to about \$200. The thief made his escape.

Dr. Will Jeffers has located in Elkader, Iowa, for the practice of dentistry.

Dr. George W. Garrison, a resident dentist of Kassoon, Minn., for nearly thirty years, sold his business to Dr. S. L. Conley of Cannon Falls, Minn.

A MERRY JESTER.

"I have decided to study dentistry," said the young man.

"It is a fine profession, but do you think it would suit your tastes?"

"I am sure of it. You see I am naturally a great practical joker. I don't believe I would enjoy anything more than to fill a man's mouth with rubber, mortar, zinc fillings, carbolic acid and Turkish toweling, and after getting a firm grip on his jaw, tell him he must be sure to let me know if I am hurting him.—*Washington Star*.

TRUE IN MOST DETAILS.

Young Hendrickson was showing his college friend Bylkykson around his native town, and soon the latter espied a stately new building. "What a splendid place!" he exclaimed. "Yes," replied Hendrickson; "but I can't bear to look on it." "That's strange," said Bylkykson. "Why?" "Because it was built with money obtained out of the blood, groans and untold agonies of the owners' fellow-men, out of the grief of women, the tears of little children, who could not eat until he had worked his will upon them." "Good heavens! Then this inhuman monster was a money-lender?" "No." "A pawnbroker, then?" "Not exactly. He was a dentist."

DENTIST SUES FOR SIGHT LOST IN PECULIAR MANNER.

Suit was filed in the District Court by Dr. John B. Thompson, a dentist of Denver, Colo., against the Fidelity and Casualty Company, upon a dentist's special insurance policy. The suit is the result of a most peculiar accident which came to the dentist through his practice. On August 23, 1902, while he was extracting teeth, his patient coughed. Poisonous saliva lodged in his eyes, which immediately became seriously infected. For a year he has been treating the eye, but now the sight is totally lost, and Dr. Thompson is incapacitated from continuing his practice.

The company refused to pay the insurance money, amounting to \$4,875, claiming that the policy did not cover this character of accident. The dentist claims that he was insured under a special policy which was intended to cover injuries he might sustain as a dentist.

DR. SUMPTER PROMOTED.

Dr. Wm. D. Sumpter, professor of anatomy in the medical and dental departments of the University of Tennessee, has recently been appointed to the chair of surgery in the dental department. Dr. Sumpter succeeded Dr. Paul F. Eve in this chair. Dr. Sumpter has been a member of the faculty of the dental and medical departments for about eight years. He attended the University of Virginia, at which institution he graduated. He then took a post-graduate course at the Polytechnic Medical College, New York, where he was closely associated with Dr. John A. Wyeth, the celebrated surgeon of New York. Dr. Sumpter's recent appointment was made in recognition of the valuable service he has rendered as professor of anatomy.

SUIT FOR MALPRACTICE.

Malpractice is the charge made by Mrs. Mary L. Van Wie, of Rochester, N. Y., against Dr. Frank W. Cady of the Cady Dental Co. She alleges in her complaint in a \$5,000 action for damages that she went to the Cady Dental Co., April 13th last, to have some work done. She says Dr. Ivory, who is employed by the company, gave her forty-four injections of some drug to quiet the pain, and then extracted twenty-two teeth at a single sitting. A severe sickness resulted, she alleges, and it was two months before she recovered.

Mrs. Van Wie's husband has also instituted a suit for damages, claiming \$500. He asserts that he is entitled to that sum because of loss of his wife's services.

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